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Water Resources Data for Washington
Water Year 1980. Volume 2. Eastern Washington

(U.S.) Geological Survey
Tacoma, WA

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U.S. Department of Commerce
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U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

1889

Water Resources Data for Washington

Volume 2. Eastern Washington

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WA-80-2

WATER YEAR 1980

Prepared in cooperation with the State of Washington
and with other agencies

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA 22161

CALENDAR FOR WATER YEAR 1980

1979

OCTOBER

S	M	T	W	T	F	S
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NOVEMBER

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1980

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SEPTEMBER

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28	29	30				

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WATER YEAR 1980

Prepared in cooperation with the State of Washington
and with other agencies

I

UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to
District Chief, Water Resources Division
U.S. Geological Survey
1201 Pacific Avenue Suite 600
Tacoma, Washington 98402
1981

PREFACE

This report was prepared by personnel of the Washington district of the Water Resources Division of the U.S. Geological Survey under the supervision of C. R. Collier, District Chief, and J. D. Bredehoeft, Regional Hydrologist, Western Region. It was done in cooperation with the State of Washington and with other agencies.

This report is one of a series issued annually for each State. General direction for the series is by Philip Cohen, Chief Hydrologist, and Robert J. Dingman, Assistant Chief Hydrologist for Scientific Publications and Data Management, U.S. Geological Survey.

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Water Resources data for the 1980 water year for Washington consists of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This report in two volumes contains records for water discharge at 233 gaging stations stage only at 5 gaging stations; stage and contents at 41 lakes and reservoirs; and water quality at 39 gaging stations (including 6 lakes and reservoirs) and 100 wells; and water levels at 164 observation wells. Also included are data for 14 crest-stage, and 89 water-quality partial-record stations. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as miscellaneous measurements analyses. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State, local and Federal agencies in Washington.

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(Letter after station name designates type of data: (d) discharge (e) elevation, gage height or contents, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (p) pesticide)

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WATER RESOURCES DATA FOR WASHINGTON, 1980

INTRODUCTION

Water resources data for the 1980 water year for Washington consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This report, in two volumes, contains records for water discharge at 233 gaging stations; stage only at 5 gaging stations; stage and contents at 41 lakes and reservoirs; water quality at 39 gaging stations (including 6 lakes and reservoirs) and 100 wells; and water levels at 164 observation wells. Also included are data for 14 crest-stage and 89 water-quality partial-record stations. Locations of sites in this volume are on figures 4, 5, and 19. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as miscellaneous measurements and analyses. These data represent that part of the national Water Data system operated by the U.S. Geological Survey and cooperating State, local, and Federal agencies in Washington.

Records of discharge and stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from the Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report WA-80-2". For archiving and general distribution, the reports for water years, 1971-74 are also identified as water-data reports. These water-data reports are on sale, in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the district chief at the address given on the back of the title page or by telephone (206) 593-6510.

COOPERATION

The U.S. Geological Survey and organizations of the State of Washington have had cooperative agreements for the systematic collection of surface-water and water-quality records since 1909. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Washington State Department of Ecology, Donald W. Moos, director
Washington State Department of Fisheries, Rollie Schmitten, director
Washington State Department of Transportation, Duane Berentson, secretary
City of Seattle, Department of Lighting, Robert Murray, superintendent
Municipality of Metropolitan Seattle, Neil Peterson, executive director
City of Tacoma, Department of Public Utilities, P. J. Nolan, director
City of Tacoma, Department of Public Works, Ronald M. Button, director
City of Everett, Department of Utilities, Marvin C. Haglund, director
City of Bellevue, Department of Public Works, Clark Douglas, director
Chelan County, P.U.D. No. 1, Howard Elmore, manager
King County, Department of Public Works, James W. Guenther, director
Lewis County, Department of Public Works, Verne Wagar, director
Quileute Tribal Council, Christian Penn, Sr., chairman
Quinault Tribal Council, Joseph B. DeLaCruz, president
Makah Tribal Council, Dale W. Johnson
Yakima Tribal Council, Watson Totus, chairman
Washington State University, Department of Agricultural Engineering, Dr. Larry King, chairman
Hoh Tribal Council, John Leitka, chairman
Clallam County Board of Commissioners, Dick Lotzgesell, chairman

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 47 gaging stations; the U.S. Environmental Protection Agency, in collecting records for one water-quality station; the U.S. Energy Research and Development Administration, in collecting records for 6 water-quality stations; the Bureau of Reclamation, U.S. Department of Interior, in collecting records for 19 gaging stations; the U.S. Department of State, in collecting records for 15 gaging stations; the Bonneville Power Administration, in collecting records for 4 gaging stations.

The following organizations aided in collecting records:

Crown Zellerbach Corporation; City of Fircrest, Intercounty River Improvement; ITT Rayonier; City of Olympia, Pacific Power and Light Co., Public Utility Districts, No. 1 of Cowlitz County, No. 1 of Douglas County, No. 2 of Grant County, No. 1 of Pend Oreille County, No. 1 of Snohomish County, Puget Sound Power and Light Co., Skagit County Public Works Department; University of Washington, through its Fisheries Research Institute and Civil Engineering Department; Washington Public Power Supply System; Washington Water Power Co., Whatcom County Engineer.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report are defined below. See also table for converting English units to International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, ac-ft) is a quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic metres.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse of plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of samples.

Fecal streptocaccal bacteria are bacteria found also in intestines of warm-blood animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Cells/volume referes to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonacous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloro-platinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulated the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet or water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/s, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to the amount of substance present in true chemical solution. In practice, however, the term includes all forms of substance that will pass through a 0.45-micrometer membrane filter, and thus may include some very small (coloidal) suspended particles. Analyses are performed on filtered samples.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution area, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part of all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (*ug/g)* is a unit expressing the concentrations of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, *ug/L)* is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L *mg/L)* is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Partial-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay..........	0.00024 - 0.004	Sedimentation
Silt..........	.004 - .062	Sedimentation
Sand..........	.062 - 2.0	Sedimentation or sieve
Gravel........	2.0 -64.0	Sieve

The particle-size distribution given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillienth (1×10^{12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those higher green plants. Some forms produce algal mats or floating "moss in lakes." Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondardy consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water, it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the work "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of aftificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplace samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the area are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdam and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexageria
Species	Hexagenia limbata

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

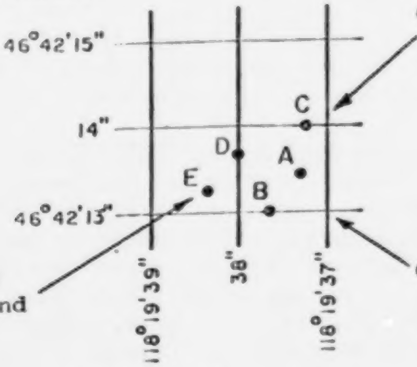
Since October 1, 1950, the order of listing hydrologic-station records in *Survey reports is in a downstream direction along the main stream. All stations* on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station such as 12041000, which appears just to the left of the station name, includes the 2-digit part number "12" plus the 6-digit downstream order number "041000."

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 below.



Coordinates for miscellaneous site C(464214118193701)

Coordinates for wells D(464213118193801) and E(464213118193802)

Coordinates for well A (464213118193701) and miscellaneous site B (464213118193702)

Figure 1. System for numbering wells and miscellaneous sites (latitude and longtitude).

Local identifier well-numbering system

Local identifier well numbers used by the Geological Survey in the State of Washington are based on and show locations of wells according to the rectangular system for subdivision of public land, indicating township, range, section, and 40-acre tract within the section. For example, in the well number 25/43E-15M1, the part preceeding the hyphen indicates successively the township and range (T.25 N., R.43 E.) north and east of the Willamette base line and meridian. (Because all townships in Washington are north of the Willamette base line the letter "N", indicating north is omitted; and because most of the State is east of the Willamette meridian the letter "E" is sometimes omitted for those ranges east of the Willamette meridian, but "W" is always included when the range lies west of the Willamette meridian.) The first number following the hyphen indicates the section (sec.15) and the letter (M) given the 40-acre subdivision of the section as shown in figure 2. The last number (1) is the serial number of the well in that particular 40-acre tract. Thus, the first well recorded in the NW¼SW¼ sec.15, T.25 N., R.43 E., would have the number 25/43-15M1, and the second well would have the number 25/43-15M2 or 25/43E-15M2. See figure 2 below:

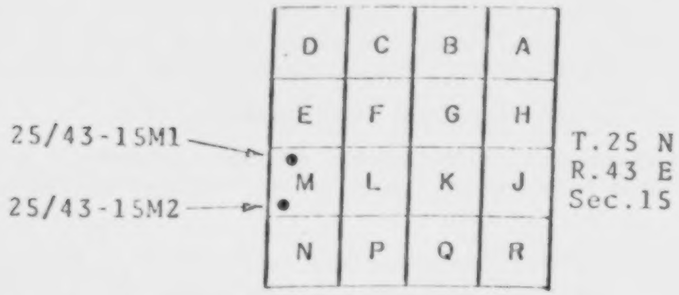


Figure 2. Local identifier well numbering system.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict area variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and asses long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Cperation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are samples represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), stepbackwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lake and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations or revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 7.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE", it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR: if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight intake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

All temperature values in the daily tables are rounded to the nearest 0.5°C. Therefore, temperature values published in conjunction with water samples may be 0.1 to 0.2°C outside the range of the values published in the daily tables.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During period of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow is predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observations wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figures 1 and 2.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

HYDROLOGIC CONDITIONS

The annual mean yearly runoff in eastern Washington during the 1980 water year was 90 to 100 percent of normal on the eastern slopes of the Cascade Mountains, 60-70 percent of normal in the Okanogan, Spokane, and Palouse River basin, and about 80 percent of normal in the remaining basins.

Monthly and annual mean discharges are compared with medians at two gaging stations in figure 3. Unadjusted flows for the Spokane River which is regulated by Coeur d'Alene Lake were below normal for all months except July to September and annual runoff was 70 percent of normal. Klickitat River flows were above normal during the months January to May, and were below normal the rest of the year. Annual runoff was 96 percent of normal.

The ground-water level in the key observation well in eastern Washington was above average in October but fell and remained below normal the remainder of the water year. The level was at least 5 feet below normal from May through September.

Storage in Keechelus, Kachess, Bumping, Rimrock, Chelan and Franklin D. Roosevelt Lakes increased 347,000 acre-feet during the year while that at Cle Elum Lake decreased 302,000 acre-feet.

On May 18, 1980 Mount St. Helens exploded in a volcanic eruption. Within minutes a giant ash cloud rose to about 60,000 feet. Winds then carried the ash cloud in an east-northeasterly direction with heavy fallout and deposition in eastern Washington.

Investigators report (USGS Circular 850-G) that the ash fall had no effect on the chemistry or biology of four lakes (Walupt, Warden, Sprague, and Amber) studied in eastern Washington.

The deposition of ash (up to three inches) can be eroded by subsequent rains and carried into the stream channels, causing reduction in transparency and possible sedimentation deposits.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.
5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.
5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.
5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

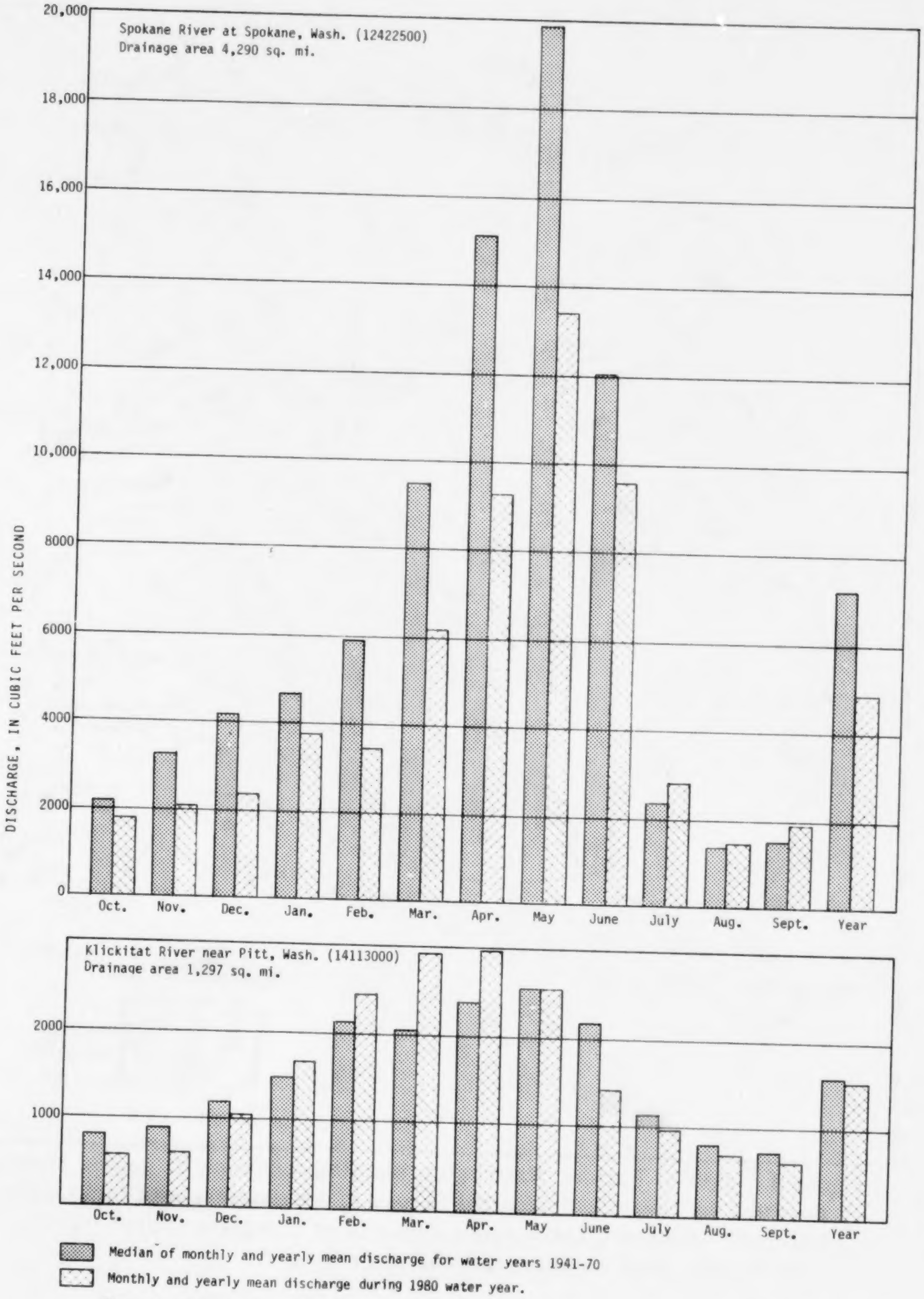


Figure 3. Discharge duing 1980 water year compared with median discharge for period 1941-70 for two representiative gaging stations

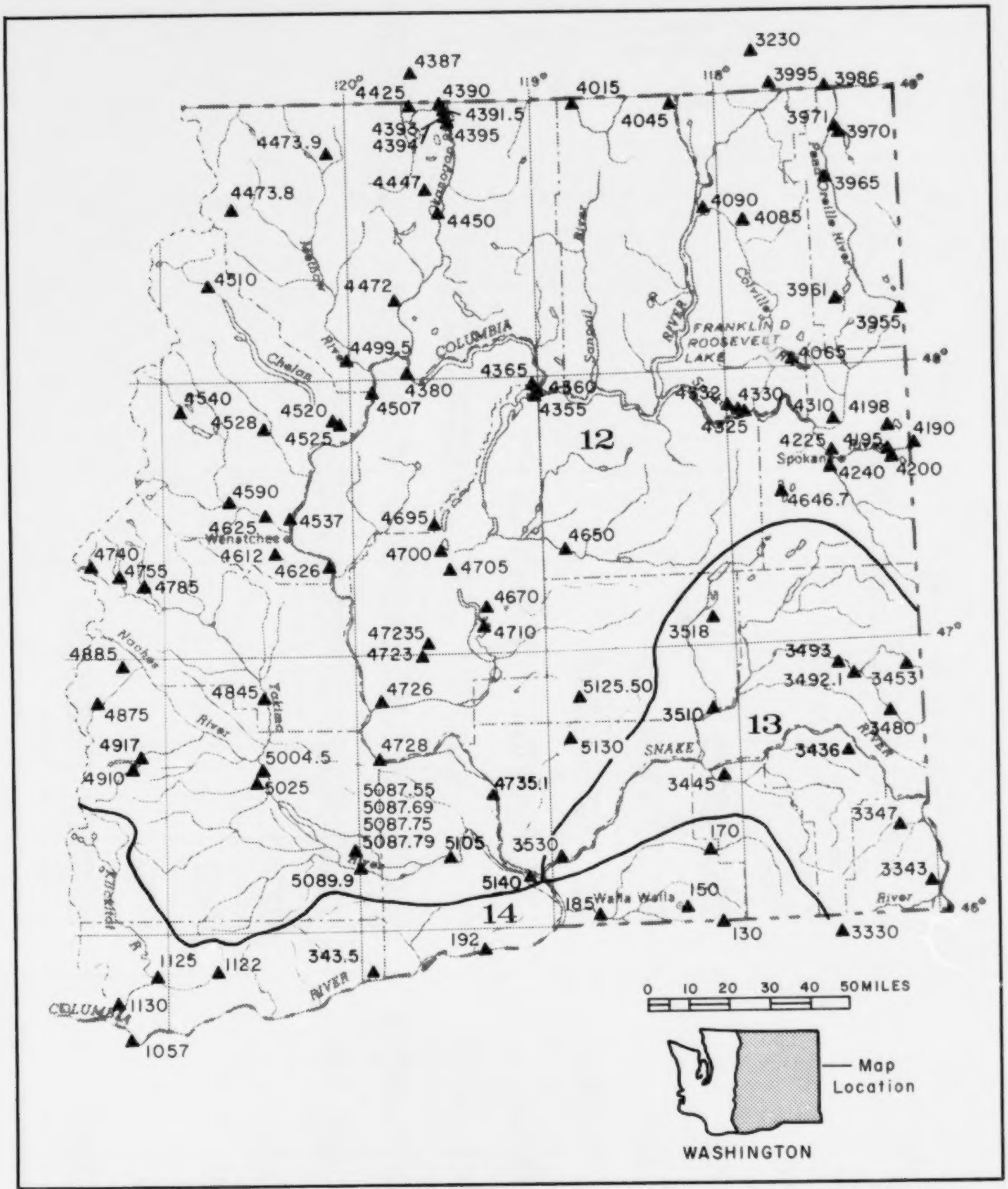

4387
4425
4390
4391.5
4393
4394
4395
4473.9
4473.8
4447
4450
4015
4045
3230
3995
3986
3971
3970
3965
4090
4085
4510
4472
3961
3955
4499.5
4380
4365
4360
4355
4332
4330
4325
4310
4198
4190
4225
4195
4240
4200
Spokane
4646.7
4540
4528
4520
4525
4507
12
4590
4625
Wenatchee
4537
4612
4626
4695
4700
4705
4650
4740
4755
4785
4670
4710
3518
47235
4723
4885
4845
4726
5125.50
3493
3492.1
3453
4875
3510
13
3480
4917
4910
5004.5
5025
4728
5130
3436
3445
5087.55
5087.69
5087.75
5087.79
5105
4735.1
3347
3530
170
5089.9
5140
185
150
3343
14
130
3330
192
1125
1122
343.5
1130
1057
COLUMBIA
Chelan
Methow
River
Okanogan
Sanpoil
River
RIVER
Colville
Pend Oreille River
FRANKLIN D ROOSEVELT LAKE
Naches
Yakima
River
SNAKE
RIVER
Walla Walla
River
Klickitat
R.
RIVER
120°
119°
118°
49°
48°
47°
46°
0 10 20 30 40 50 MILES
Map Location
WASHINGTON

Figure 4. Map of Eastern Washington showing locations of gaging stations operated by the U.S. Geological Survey in cooperation with other agencies. Numbers shown are abbreviated versions of complete station number used in text. Part numbers are the large figures.

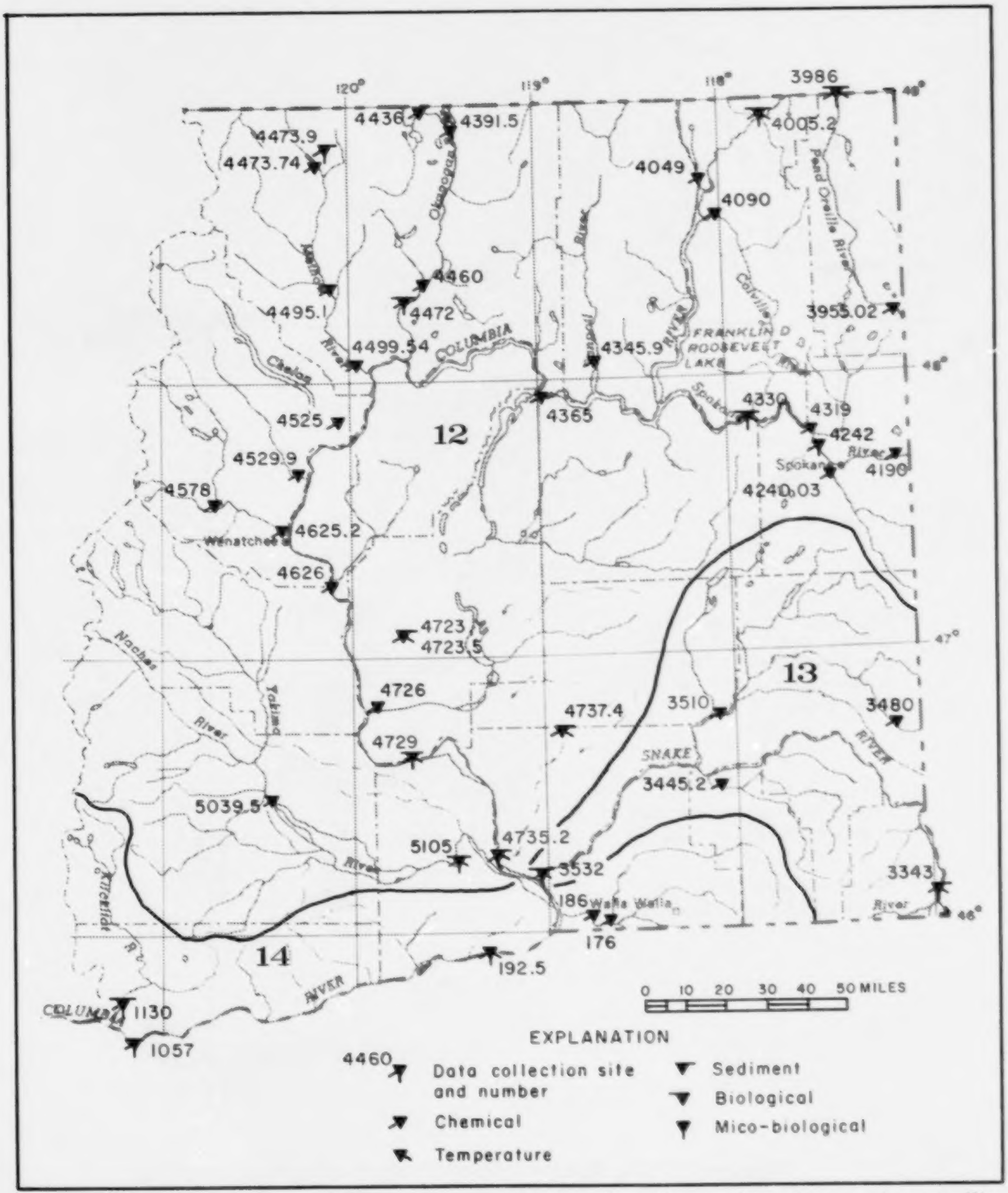
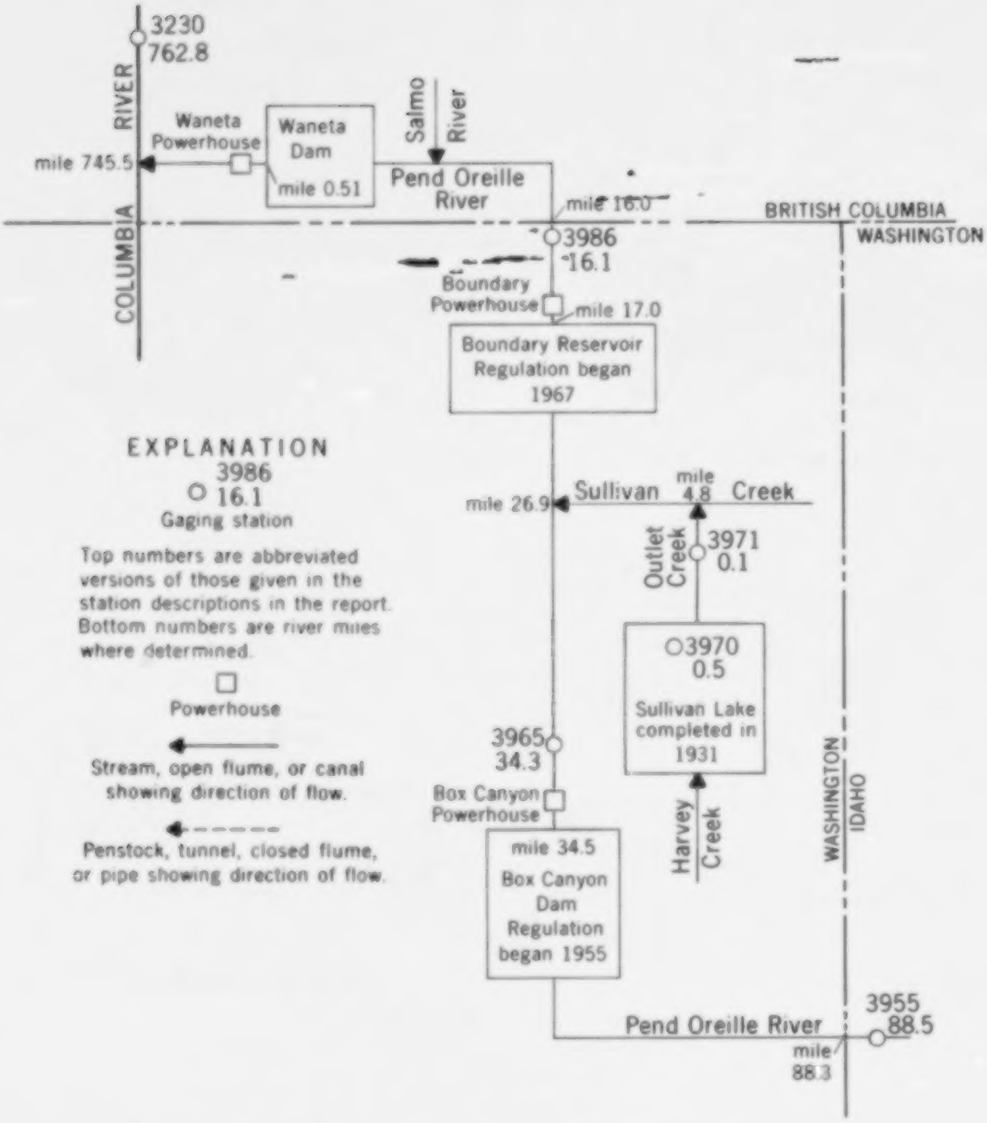

120°
119°
118°
49°
48°
47°
46°
3986
4436
4391.5
4473.9
4473.74
4005.2
4049
4090
Okanogan
Pend Oreille River
4460
4472
4495.1
Methow
3955.02
FRANKLIN D ROOSEVELT LAKE
4499.54
COLUMBIA
Chelan
River
4345.9
RIVER
Colville
Spokane
4330
4319
4242
River
4190
Spokane
4240.03
4365
4525
12
4529.9
4578
4625.2
Wenatchee
4626
4723
4723.5
Naches
Yakima
River
13
4726
4737.4
3510
3480
4729
SNAKE
RIVER
3445.2
5039.5
5105
4735.2
3532
3343
Klickitat R
River
186
Walla Walla
176
River
14
192.5
RIVER
COLUMBIA
1130
1057
0 10 20 30 40 50 MILES
EXPLANATION
4460 Data collection site and number
Chemical
Temperature
Sediment
Biological
Mico-biological

Figure 5. Map of Eastern Washington showing locations of surface-water-quality sampling stations operated by the U.S. Geological Survey in cooperation with other agencies. Numbers shown are abbreviated versions of complete station number used in text. Part numbers are the large figures.


3230
762.8
COLUMBIA RIVER
mile 745.5
Waneta Powerhouse
Waneta Dam
mile 0.51
Salmo River
Pend Oreille River
mile 16.0
BRITISH COLUMBIA
WASHINGTON
3986
16.1
Boundary Powerhouse
mile 17.0
Boundary Reservoir Regulation began 1967
mile 26.9
Sullivan Creek
mile 4.8
Outlet Creek
3971
0.1
3970
0.5
Sullivan Lake completed in 1931
Harvey Creek
WASHINGTON
IDAHO
3965
34.3
Box Canyon Powerhouse
mile 34.5
Box Canyon Dam Regulation began 1955
Pend Oreille River
3955
88.5
mile 88.3

EXPLANATION

○ 3986 16.1 Gaging station

Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.

☐ Powerhouse

◀——— Stream, open flume, or canal showing direction of flow.

◀- - - - - Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 6. Gaging stations in Pend Oreille River basin and Columbia River above International Boundary.

12323000 COLUMBIA RIVER AT BIRCHBANK, BRITISH COLUMBIA
(International gaging station)

LOCATION.--Lat 49°10'40", long 117°42'59", on right bank at Birchbank, British Columbia, 0.7 mi (1.1 km) downstream from Sullivan Creek, 7 mi (11.3 km) upstream from Trail, 11.7 mi (18.8 km) downstream from Kootenay River, 17.4 mi (28.0 km) upstream from international boundary, and at mile 762.4 (1,226.7 km).

DRAINAGE AREA.--34,000 mi^2 (88,100 km^2) approximately.

PERIOD OF RECORD.--April 1913 to current year. Published as "at Trail, British Columbia" 1913-37.

REVISED RECORDS.--WSP 982: 1942. WSP 1216: 1949.

GAGE.--Water-stage recorder. Datum of gage is 1,329.90 ft (405.354 m) National Geodetic Vertical Datum of 1929, 1947 international joint adjustment, published as 1,338.00 ft (407.822 m) prior to October 1948. Prior to Oct. 1, 1937, nonrecording gage on highway bridge at site 6.8 mi (10.9 km) downstream at datum 16.27 ft (4.959 m) lower.

REMARKS.--Records excellent. Flow regulated by six major reservoirs, and by numerous small reservoirs and powerplants. Diversions above station for irrigation of about 25,000 acres (101 km^2).

COOPERATION.--This station is maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--67 years, 70,910 ft^3/s (2,008 m^3/s), 51,370,000 acre-ft/yr (63,300 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 377,000 ft^3/s (10,700 m^3/s) June 9, 1961, gage height, 50.05 ft (15.255 m); maximum gage height, 50.62 ft (15.429 m) June 11, 1948; minimum discharge observed, 8,940 ft^3/s (253 m^3/s) Feb. 3, 1937, gage height, 6.27 ft (1.911 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 115,000 ft^3/s (3,260 m^3/s) Dec. 4, gage height, 23.22 ft (7.077 m); minimum daily, 20,200 ft^3/s (572 m^3/s) Apr. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60700	44500	66700	53000	74100	44600	30400	80600	59600	94000	78900	44600
2	60700	42400	81200	50000	76900	44100	28000	81600	59900	98600	74300	40200
3	60700	54400	93600	52900	68300	43100	24300	83200	59100	94500	71000	40100
4	59000	59300	107000	56100	56200	44100	25300	76600	58300	84300	82500	39700
5	56900	53300	113000	56500	52500	43900	24700	66600	55800	76600	91200	39600
6	54700	52300	106000	58900	52200	43900	22300	68600	55900	76600	86200	39800
7	50100	52300	111000	61800	52400	43400	20500	72700	56300	75100	83500	45800
8	45600	54400	111000	61600	52300	43100	20200	73000	55800	74700	80200	63100
9	45600	59700	108000	61600	52800	40700	24400	81200	55100	77200	80200	70300
10	44100	59700	105000	61500	55500	36500	32000	83200	57000	75400	77200	70500
11	45600	55800	105000	61500	58900	39000	35500	81700	58000	73600	74000	70800
12	45600	48000	106000	61400	56500	39200	33600	80300	62800	76300	73600	70600
13	45600	44800	105000	61100	54800	38600	34700	75900	70900	76500	73200	70300
14	53000	47000	105000	61000	54200	39600	35000	70900	70000	74300	75500	63300
15	65300	47700	104000	64400	56100	42600	39000	70900	70700	74400	77900	50900
16	70600	45900	97800	68600	58700	41200	38500	69900	70700	71900	77800	44900
17	71300	47000	99900	69800	58900	36800	41200	69300	67800	84400	82100	40000
18	68500	51600	101000	69800	61400	33800	44100	69000	76600	84600	83900	36300
19	68100	54400	101000	69800	63800	33100	44900	68800	84700	77700	82400	27700
20	68100	55800	98400	65300	59900	34600	49700	67300	86000	74300	83500	28700
21	68500	55400	96400	57800	58800	37600	52000	67600	80400	73700	86500	31500
22	67400	48400	93900	59000	58800	37800	52300	70800	76700	70700	86900	28100
23	67400	51200	84000	51800	55500	35800	53500	70100	79600	71700	87200	30900
24	67100	48700	73100	51700	52900	30500	58200	67700	85000	72500	82400	31000
25	64300	55400	61100	51700	46400	28700	61000	65000	89200	76300	67700	31400
26	51600	68500	53000	51800	44800	28600	63500	62700	83300	74000	60500	31600
27	38500	72700	53300	57100	44700	29900	68700	63600	78800	73700	61000	30500
28	34100	71300	50500	62800	44700	32700	73300	61000	77400	74400	61500	33100
29	27400	69900	48700	62900	44700	30000	83500	61200	76300	77600	64000	36300
30	22700	67400	49100	63700	---	29900	82300	61900	79900	77200	63700	36000
31	28800	---	49400	71400	---	29800	---	60800	---	77400	56500	---
TOTAL	1677600	1639200	2730600	1868300	1627700	1158400	1296600	2203700	2097600	2414200	2367000	1317600
MEAN	54120	54640	88080	60270	56130	37370	43220	71090	69920	77880	76350	43920
MAX	71300	72700	113000	71400	76900	44600	83500	83200	89200	98600	91200	70800
MIN	22700	42400	48700	50000	44700	28600	20200	60800	55100	70700	56500	27700
AC-FT	3328000	3251000	5416000	3706000	3229000	2298000	2572000	4371000	4161000	4789000	4695000	2613000

CAL YR 1979 TOTAL 23850600 MEAN 65344 MAX 118000 MIN 19300 AC-FT 47310000
WTR YR 1980 TOTAL 22406500 MEAN 61220 MAX 113000 MIN 20200 AC-FT 44440000

12395500 PEND OREILLE RIVER AT NEWPORT, WA

LOCATION.--Lat 48°10'56", long 117°02'00", in SE¼SW¼SW¼ sec.24, T.56 N., R.6 W. (Boise meridian), Bonner County, Hydrologic Unit 17010216, on left bank at Newport, 0.2 mi (0.3 km) upstream from bridge on U.S. Highway 2, 0.2 mi (0.3 km) east of Idaho-Washington State line, 1.6 mi (2.6 km) downstream from Albeni Falls Dam, and at mile 88.5 (142.4 km).

DRAINAGE AREA.--24,200 mi^2 (62,700 km^2), approximately.

PERIOD OF RECORD.--June 1903 to September 1941, October 1952 to current year. Prior to October 1921, published as Clark Fork at Newport, Wash., October 1921 to September 1937, as Clark Fork at Priest River, Idaho, and October 1937 to September 1941, as Pend Oreille River at Priest River, Idaho.

REVISED RECORDS.--WSP 532: 1903-11.

GAGE.--Water-stage recorder. Datum of gage is 1,999.7 ft (609.509 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 22, 1928, nonrecording gages at Priest River, Newport, or Metaline Falls at various datums (see description, WSP 532, p. 92). Sept. 22, 1928, to Sept. 30, 1935, at datum 2,040.24 ft (621.835 m) National Geodetic Vertical Datum, and Oct. 1, 1935, to Sept. 30, 1941, at datum 2,000 ft (609.6 m) National Geodetic Vertical Datum, water-stage recorder at Priest River. Since December 1952, auxiliary water-stage recorder 2.74 mi (4.4 km) downstream from base gage.

REMARKS.--Records good. Flow regulated at Albeni Falls Dam and affected by storage in Pend Oreille Lake (see sta 12392500), Flathead Lake, Hungry Horse Reservoir, and several smaller reservoirs. Diversions above station for irrigation of about 354,000 acres (143,000 hm^2).

AVERAGE DISCHARGE.--66 years (1904-41, 1953-80), 25,930 ft^3/s (734 m^3/s), 18,790,000 acre-ft/yr (23.2 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft^3/s (3,850 m^3/s) June 15, 1913, June 21, 1933, June 12, 1972; minimum, 1,280 ft^3/s (36 m^3/s) Sept. 1, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of about 64.0 ft (19.51 m) present site and datum, discharge, about 200,000 ft^3/s (5,660 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 98,300 ft^3/s (2,783 m^3/s) May 29; maximum gage height, 46.53 ft (14.182 m) May 29; minimum discharge, 2,870 ft^3/s (81.3 m^3/s) Feb. 19; minimum gage height, 30.87 ft (9.409 m) Feb. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16200	18100	15900	13700	13600	17300	14000	29500	70000	35100	12700	10600
2	18300	13200	15900	13600	14400	16200	12800	29700	66900	33800	11400	10700
3	18500	23000	15100	14100	15200	15900	10200	29600	66800	32800	11000	13500
4	18700	25000	15000	13600	14600	15600	11100	29700	67100	30800	11000	16100
5	21500	25600	16600	16500	13500	15800	11100	29800	70900	30600	12500	16100
6	22700	25500	15100	16900	13800	15900	12000	32200	74600	30900	11900	16200
7	22800	25700	13300	16600	13600	14600	14900	39800	75700	33200	10600	16200
8	22000	25400	13600	16900	14000	12200	16900	42700	75400	32900	9890	16100
9	21400	25600	13700	15100	13800	11300	16900	42900	72100	30400	9210	16100
10	18600	25300	16000	11200	14000	12400	17000	43200	63500	29600	9160	16200
11	16700	24500	18300	11100	13200	16000	13500	43800	52300	29000	8590	16200
12	16700	24900	17900	12700	10500	18800	8770	42000	46200	28200	8230	16100
13	16700	25700	17900	16100	10300	18800	8280	37400	54500	27000	8390	16200
14	16500	25800	17900	16700	14400	14600	10800	38100	62200	27500	10000	16300
15	16400	25600	18100	17100	18300	11000	13300	37500	70500	26400	9400	18900
16	16500	24400	17800	16500	17200	11200	13200	37600	76000	24900	8250	21600
17	16400	24500	18000	16200	10200	11200	12900	37700	77200	24900	8250	21600
18	20700	24000	18500	15900	7410	11600	13100	37400	71700	26300	9890	21800
19	23600	24100	19500	15700	5440	11400	12900	37600	61400	25300	9300	21800
20	23400	21600	21200	15800	3680	12000	13200	38000	59800	23800	8430	21800
21	23500	17400	21400	14700	7250	13100	13000	37900	61400	21000	11800	21700
22	23700	16000	20500	13400	10800	13600	17200	37900	60200	16400	13500	19400
23	23900	17000	19100	13500	10900	13500	20800	39700	54400	16100	15200	16300
24	24400	16600	17800	11800	11300	18000	22800	45400	45400	17400	16900	12800
25	25100	15500	16900	11200	12400	19300	23600	52800	36300	16100	16700	11100
26	25200	15800	15100	11600	14700	18800	23700	66800	34800	14000	14500	13900
27	25100	15900	13900	11700	15700	19300	23500	83000	36300	12700	13300	16400
28	25200	16800	13600	12100	15900	18000	23600	87900	37300	12400	13300	16400
29	25100	17600	13600	13300	16100	13500	25800	98300	37300	12500	13300	16500
30	23300	16100	13900	13400	---	11800	29500	89900	36700	12800	11000	21600
31	21600	---	13800	13500	---	14000	---	79700	---	12600	10600	---
TOTAL	651200	642200	514900	442200	366180	456700	480350	1455500	1774900	747400	348190	506200
MEAN	21010	21410	16610	14260	12630	14730	16010	46950	59160	24110	11230	16870
MAX	25200	25800	21400	17100	18300	19300	29500	98300	77200	35100	16900	21800
MIN	16200	13200	13300	11100	3680	11000	8280	29500	34800	12400	8230	10600
AC-FT	1292000	1274000	1021000	877100	726300	905900	952800	2887000	3521000	1482000	690600	1004000

CAL YR 1979: TOTAL 8199030 MEAN 22460 MAX 74900 MIN 5110 AC-FT 16260000
WTR YR 1980: TOTAL 8385920 MEAN 22910 MAX 98300 MIN 3680 AC-FT 16630000

12395502 PEND OREILLE RIVER AT U.S. HIGHWAY 2, AT NEWPORT, WA

LOCATION.--Lat 48°11'07", long 117°02'00", in SE¼SW¼ sec.24, T.56 N., R.6 W. (Boise Meridian), Bonner County, Hydrologic Unit 17010216, at U.S. Highway 2 at Newport, 0.2 mi (0.3 km) east of Idaho-Washington State line, 0.2 mi (0.3 km) downstream from gage, 1.8 mi (2.9 km) downstream from Albeni Falls Dam, and at mile 88.7 (142.7 km).

DRAINAGE AREA.--24,200 mi² (62,700 km²), approximately.

PERIOD OF RECORD.--Water years 1959-69, 1973-74, 1976 to June 1980 (discontinued).

REMARKS.--Water years 1959-69, 1973-74, 1976 published as 12395500 "Pend Oreille River at Newport", later changed to 12395502 "Pend Oreille River at U.S. Highway 2, at Newport."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)
OCT , 1979									
17...	0920	10400	155	7.4	14.5	5	2.0	9.6	75
NOV									
13...	0905	25300	170	8.4	7.0	4	6.0	11.6	86
DEC									
11...	0900	17800	176	8.1	3.7	6	10	12.5	87
JAN , 1980									
08...	1000	16400	145	8.0	.3	12	3.0	12.9	81
FEB									
26...	1045	14900	155	8.0	2.8	3	15	12.1	79
MAR									
11...	0910	15700	165	7.8	2.0	3	10	11.8	80
APR									
08...	0845	16700	170	7.9	5.6	--	4.0	10.9	75
MAY									
06...	0630	E30500	135	8.1	13.0	5	10	8.7	62
JUN									
11...	0650	55000	145	8.0	12.7	--	25	10.2	70

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)
OCT , 1979									
17...	6	21	5.6	2.5	6	.1	.9	69	4.3
NOV									
13...	2	24	6.5	3.0	6	.1	.9	84	.5
DEC									
11...	5	24	6.6	3.0	6	.1	.9	82	1.0
JAN , 1980									
08...	1	22	6.5	3.5	8	.1	.8	80	1.2
FEB									
26...	1	22	6.0	2.7	6	.1	.9	78	1.2
MAR									
11...	5	22	6.2	3.0	7	.1	.9	75	1.8
APR									
08...	4	21	5.6	2.8	7	.1	1.0	71	1.4
MAY									
06...	2	17	4.8	2.5	7	.1	.9	60	.7
JUN									
11...	5	20	5.1	2.7	7	.1	1.0	65	1.0

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979									
17...	10	.8	.04	.030	.04	.020	.06	.030	.09
NOV									
13...	13	1.0	.04	.020	.02	.010	.03	.000	.00
DEC									
11...	7.3	3.2	.08	.010	.01	.020	.06	.000	.00
JAN , 1980									
08...	12	.9	.11	.040	.05	.020	.06	.010	.03
FEB									
26...	7.5	.9	.18	.040	.05	.010	.03	.000	.00
MAR									
11...	8.6	.7	.05	.000	.00	.020	.06	.000	.00
APR									
08...	8.8	.6	.16	.100	.12	.180	.55	.170	.52
MAY									
06...	8.1	1.0	.08	.070	.08	.020	.06	.000	.00
JUN									
11...	15	.7	.02	.040	.05	.020	.06	.010	.03

12395502 PEND OREILLE RIVER AT U.S. HIGHWAY 2, AT NEWPORT, WA--Continued

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT , 1979											
17...	0920	2	60	<1	0	0	2	1.2	0	0	<3
NOV											
13...	0905	2	70	<1	0	0	7	.6	0	0	<3
DEC											
11...	0900	6	70	<1	0	0	4	.8	1	0	<3
JAN , 1980											
08...	1000	1	60	1	0	0	6	.5	0	0	8
FEB											
26...	1045	5	60	<1	0	0	0	.3	0	0	<3
MAR											
11...	0910	1	60	<1	0	2	2	.2	0	0	<3
APR											
08...	0845	1	50	<1	0	3	5	1.8	0	0	<3
MAY											
06...	0630	1	50	<1	0	4	17	.0	0	0	4
JUN											
11...	0650	1	50	<1	0	10	0	.9	0	0	<3

12396500 PEND OREILLE RIVER BELOW BOX CANYON, NEAR IONE, WA

LOCATION.--Lat 48°46'52", long 117°24'55", in SE¼NE¼ sec.19, T.38 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 1,000 ft (305 m) downstream from Box Canyon Dam, 2.8 mi (4.5 km) north of Ione, and at mile 34.3 (55.2 km).

DRAINAGE AREA.--24,900 mi^2 (64,500 km^2), approximately.

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 29, 1954, nonrecording gage at site 300 ft (91 m) upstream at same datum. Mar. 29, to Aug. 25, 1954, nonrecording gage at present site and datum. Since Aug. 20, 1967, auxiliary water-stage recorder 1.2 mi (1.9 km) downstream at same datum.

REMARKS.--Records good. Discharges for Nov. 26 to Dec. 5 furnished by Pend Oreille County P.U.D. Flow completely regulated by Box Canyon Reservoir, 1,000 ft (305 m) upstream since June 1955 and by Pend Oreille Lake, Flathead Lake, Hungry Horse Reservoir, and by several smaller reservoirs and powerplants. In 1946 there were diversions for irrigation of 340,000 acres (1,380 km^2) above the station.

AVERAGE DISCHARGE.--28 years, 28,040 ft^3/s (794.1 m^3/s) 20,310,000 acre-ft/yr (25,000 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft^3/s (3,850 m^3/s) June 13, 14, 1972; maximum elevation, 2,014.54 ft (614.032 m) June 14, 1972; minimum observed discharge, 125 ft^3/s (3.54 m^3/s) Apr. 23, 1967 (result of regulation).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1948 reached elevation of 2,018.00 ft (615.086 m), from floodmarks, discharge, 167,000 ft^3/s (4,730 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 98,300 ft^3/s (2,780 m^3/s) May 30, elevation, 2,006.99 ft (611.731 m) minimum, 2,830 ft^3/s (80.1 m^3/s) Feb. 21, elevation, 1,980.83 ft (603.757 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13900	21300	16100	13300	13000	16100	13400	32400	68400	36100	11300	10200
2	16600	15000	16400	12900	13100	16100	13100	34100	63700	33100	11600	10400
3	17700	17400	15600	12800	13300	15100	10000	34800	67000	33900	9750	11600
4	17900	22100	14500	13100	14000	15600	12000	35000	67900	32400	9970	14900
5	18800	24300	16400	14700	12300	15400	11500	35300	71600	31300	10700	16000
6	21800	24800	15400	15400	12600	15600	11300	35600	75400	30700	12500	15900
7	22900	25800	13500	16900	12800	15200	13000	40500	76700	31200	10300	16000
8	23200	25100	13200	16700	13000	12700	15700	44500	76900	32700	9910	15900
9	22600	25400	12600	16200	13200	11000	16700	46600	73600	31700	9050	15200
10	18700	25000	13600	12700	13300	11800	17400	47900	69100	32100	8500	15400
11	16800	24400	16900	8970	13100	13900	15800	49000	61600	29700	8430	16200
12	16800	24500	17800	8440	12100	17500	10100	49900	50700	28600	7870	16300
13	15900	24700	18200	10800	9830	20100	10700	45000	49300	28000	8180	16400
14	15800	23400	18100	11600	12600	17000	10300	42800	61200	27000	8590	16600
15	15100	23400	17500	13900	15400	12400	14000	41800	66500	26800	9650	16800
16	15500	24000	18500	14700	17200	10400	13300	39200	75200	25500	8010	20300
17	15400	23700	17300	15100	13200	11100	13500	38300	76200	24500	7470	21800
18	16500	23600	17300	16200	9540	11800	13600	38600	76500	25500	8570	22000
19	22300	23700	18400	16300	7640	11600	14000	39200	64600	26300	9550	21900
20	22700	22700	20400	14800	7000	11300	14800	39100	60000	24500	8630	23700
21	23100	18800	22000	14600	5460	12400	14900	39100	60700	22100	9120	22900
22	23200	16700	21000	13500	11500	13800	15600	39200	61300	18800	11900	20800
23	22900	15600	20800	13000	11700	13000	20700	40000	59300	16400	13500	14800
24	23700	15600	18100	12200	9750	15100	23400	43700	51800	16800	15500	11800
25	23700	15300	16800	11500	12300	18900	24900	49000	41700	16600	16400	10900
26	24500	16000	15900	10700	13400	19200	25800	64800	37500	15000	17500	10700
27	24600	15700	14300	11000	15800	19500	25700	75500	36500	12300	16900	14300
28	25000	16000	13800	12200	15400	19900	25000	81200	35900	12300	12700	14800
29	23900	16500	12600	12000	16700	16000	27500	91700	36400	11800	8680	15400
30	23700	16900	12700	12500	---	12100	30000	92900	36600	11700	8100	19000
31	22100	---	13700	12400	---	13000	---	85300	---	11400	9860	---
TOTAL	627300	627400	509400	411110	360220	454600	497700	1512000	1809800	756800	328690	488900
MEAN	20240	20910	16430	13260	12420	14660	16590	48770	60330	24410	10600	16300
MAX	25000	25800	22000	16900	17200	20100	30000	92900	76900	36100	17500	23700
MIN	13900	15000	12600	8440	5460	10400	10000	32400	35900	11400	7470	10200
AC-FT	1244800	1244000	1010000	815400	714500	901700	987200	2999000	3590000	1501000	652000	969700

CAL YR 1979 TOTAL 8296520 MEAN 22730 MAX 81500 MIN 4680 AC-FT 16460000
WTR YR 1980 TOTAL 8383920 MEAN 22910 MAX 92900 MIN 5460 AC-FT 16630000

12397000 SULLIVAN LAKE NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'21", long 117°17'15", in SW¼NE¼ sec.31, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, 200 ft (61 m) south of dam at outlet, 4.0 mi (6.4 km) southeast of Metaline Falls.

DRAINAGE AREA.--51.2 mi^2 (132.6 km^2).

PERIOD OF RECORD.--May 1912 to September 1923, January 1959 to current year (fragmentary).

REVISED RECORDS.--WSP 1933; Drainage area.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pend Oreille County Public Utility District). Prior to Sept. 30, 1923, nonrecording gage on dam at outlet of lake at different datum.

REMARKS.--Lake elevation is controlled by concrete dam. Top of gates is at 2,588.7 ft (789.04 m), bottom of gates is at 2,584.7 ft (787.82 m). Bottom of sluiceway is at 2,564 ft (781.5 m). Some small diversions for domestic use.

COOPERATION.--Elevation record furnished by Public Utility District No. 1 of Pend Oreille County.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 2,589.94 ft (789.414 m) July 15, 1975; minimum observed 2,564.00 ft (781.507 m) on many days during period Jan. 6 to Mar. 25, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 2,589.00 ft (789.127 m) June 1; minimum observed, 2,564.55 ft (781.675 m) Feb. 1.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2582.30	2579.70	---	---	2564.55	---	2566.70	2576.50	2589.00	2588.45	---	---
2	---	2579.30	---	2564.94	---	---	2566.75	2577.40	2588.60	2588.45	---	2588.25
3	---	2578.90	---	---	---	---	2566.80	2578.20	2588.50	2588.45	---	---
4	---	2578.50	---	---	---	---	2566.80	2579.00	2588.40	2588.40	---	---
5	---	2578.10	---	---	---	---	2566.85	2579.90	2588.30	2588.35	2588.30	2588.30
6	---	---	---	---	---	---	2566.95	2580.40	2588.20	2588.30	---	---
7	---	2577.40	2567.25	---	---	---	2567.00	2580.81	2588.20	2588.25	---	---
8	2582.15	2577.05	2567.00	---	---	---	2567.10	2581.35	2588.30	2588.25	2588.20	---
9	---	2576.70	2566.90	---	---	---	2567.10	2582.30	2588.40	---	---	2588.40
10	---	2576.30	2566.60	---	---	2565.55	2567.15	2582.85	2588.50	2588.26	---	---
11	---	2575.85	---	2564.78	---	2565.65	2567.20	2583.90	2588.50	---	---	---
12	---	2575.40	---	---	---	2565.70	2567.25	2584.00	2588.55	2588.40	2588.15	2588.40
13	---	2575.10	---	---	---	---	2567.30	2584.45	2588.60	---	---	---
14	---	2574.80	---	---	---	---	2567.30	2584.80	2588.50	---	---	---
15	2582.10	2574.25	---	---	---	2565.90	2567.45	2585.30	2588.50	2588.40	---	---
16	---	---	---	---	---	2565.95	2567.55	2585.50	2588.45	---	2588.10	2588.40
17	---	---	---	---	---	---	2567.75	2586.00	2588.45	---	---	---
18	---	2573.25	---	2564.66	---	2566.10	2567.80	2586.30	2588.45	2588.45	---	---
19	---	2572.85	---	---	---	2566.15	2568.00	2586.50	2588.45	---	2588.20	2588.35
20	---	2572.50	---	---	---	2566.20	2568.30	2586.80	2588.45	---	---	---
21	---	2572.15	---	---	---	2566.20	2568.60	2587.00	2588.45	---	---	---
22	---	2571.80	---	---	---	2566.25	2568.80	2587.30	2588.45	2588.50	2588.30	---
23	---	---	---	---	---	2566.30	2569.30	2587.40	2588.45	---	---	2588.40
24	---	---	---	---	---	2566.40	2569.75	2587.40	2588.45	---	---	---
25	---	2570.75	---	2564.58	---	2566.45	2570.40	2587.40	2588.45	2588.50	2588.10	---
26	---	2570.30	---	---	---	2566.50	2570.90	2587.40	2588.45	---	2588.12	2588.40
27	---	2570.00	2565.20	---	---	2566.60	2571.60	2587.40	2588.45	---	---	---
28	---	2569.60	---	---	---	2566.60	2572.30	2587.60	2588.45	2588.40	---	---
29	2580.86	2569.30	---	---	---	2566.60	2573.50	2587.80	2588.45	---	2588.15	---
30	2580.45	2569.00	---	---	---	2566.60	2574.80	2588.00	2588.45	---	---	2588.40
31	2580.00	---	---	---	---	2566.70	---	2588.20	---	---	---	---
MEAN	---	---	---	---	---	---	2568.50	2584.36	2588.46	---	---	---
MAX	---	---	---	---	---	---	2574.80	2588.20	2589.00	---	---	---
MIN	---	---	---	---	---	---	2566.70	2576.50	2588.20	---	---	---

12397100 OUTLET CREEK NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'42", long 117°17'12", in SW¼SE¼ sec.30, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, on right bank 0.1 mi (0.2 km) upstream from mouth, 0.4 mi (0.6 km) downstream from Sullivan Lake Dam, and 4 mi (6.4 km) east of Metaline Falls.

DRAINAGE AREA.--51.5 mi^2 (133.4 km^2).

PERIOD OF RECORD.--January 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,540.2 ft (774.25 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent except those for June 8 to July 10, which are poor. Flow completely regulated by Sullivan Lake 0.4 mi (0.6 km) upstream (see sta 12397000). No diversions.

AVERAGE DISCHARGE.--21 years, 72.4 ft^3/s (2.050 m^3/s), 52,450 acre-ft/yr (64.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 924 ft^3/s (26.2 m^3/s) May 31, 1969, gage height, 12.26 ft (3.737 m); minimum 1.6 ft^3/s (0.045 m^3/s) part of each day Apr. 9-12, 1973, minimum gage height, 8.76 ft (2.670 m) part of each day Apr. 9-12, 1973, and Mar. 4-10, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 279 ft^3/s (7.90 m^3/s) June 2, maximum gage height, 10.64 ft (3.243 m) Oct. 26; minimum, 1.7 ft^3/s (0.048 m^3/s) Mar. 4-10, gage height, 8.76 ft (2.670 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	247	160	37	22	35	2.4	3.9	60	110	25	25
2	15	244	155	36	22	36	2.4	4.4	172	110	25	25
3	15	238	148	35	18	27	2.4	5.0	254	110	25	25
4	15	235	144	33	18	1.7	2.6	5.3	191	110	25	25
5	15	233	137	32	18	1.7	2.6	5.3	129	110	25	25
6	15	230	133	31	18	1.7	2.6	5.9	104	110	25	25
7	15	224	126	29	17	1.7	2.6	6.6	92	70	25	25
8	15	219	120	28	16	1.7	2.6	8.7	60	25	25	25
9	15	227	116	27	16	1.7	2.6	9.9	45	24	25	25
10	15	233	110	26	16	1.7	2.6	10	130	24	25	25
11	15	227	105	26	16	1.9	2.6	12	180	24	24	25
12	15	224	99	20	15	1.9	2.6	14	210	24	24	25
13	15	227	94	25	15	1.9	2.4	15	250	24	24	25
14	15	233	88	25	15	2.0	2.4	16	250	24	24	25
15	15	227	82	26	15	2.0	2.4	14	250	24	24	25
16	15	224	74	26	15	2.0	2.4	14	230	24	24	25
17	15	221	69	26	15	2.0	2.4	16	205	24	24	25
18	15	213	66	25	15	2.0	2.4	17	205	24	25	24
19	15	208	66	25	16	2.0	2.4	34	105	25	25	25
20	15	205	65	25	16	2.0	2.4	84	50	25	25	25
21	15	216	63	24	16	2.0	2.4	120	105	25	25	25
22	15	227	62	24	16	2.0	2.4	144	105	25	25	25
23	15	221	58	23	16	2.2	2.6	162	105	26	25	25
24	15	213	55	23	16	2.2	2.6	162	120	25	25	25
25	15	208	52	23	16	2.2	2.6	161	135	25	25	25
26	160	203	50	23	16	2.2	2.6	160	125	25	25	25
27	266	192	47	22	20	2.2	2.6	92	110	25	25	25
28	263	179	45	22	26	2.2	3.0	18	110	25	25	25
29	260	172	43	22	31	2.4	3.4	18	110	25	25	25
30	253	164	41	22	---	2.4	3.7	44	110	25	25	25
31	244	---	38	22	---	2.4	---	72	---	25	25	---
TOTAL	1821	6534	2711	813	507	154.0	77.7	1454.0	4307	1321	768	749
MEAN	58.7	218	87.5	26.2	17.5	4.97	2.59	46.9	144	42.6	24.8	25.0
MAX	266	247	160	37	31	36	3.7	162	254	110	25	25
MIN	15	164	38	20	15	1.7	2.4	3.9	45	24	24	24
AC-FT	3610	12960	5380	1610	1010	305	154	2880	8540	2620	1520	1490

CAL YR 1979 TOTAL 14997.2 MEAN 41.1 MAX 266 MIN 1.9 AC-FT 29750
WTR YR 1980 TOTAL 21216.7 MEAN 58.0 MAX 266 MIN 1.7 AC-FT 42080

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY
(International gaging station)

LOCATION.--Lat 48°59'56", long 117°21'09", in SW¼NE¼ sec.3, T.40 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 0.1 mi (0.2 km) upstream from international boundary, 0.9 mi (1.4 km) downstream from Boundary Dam, 6.0 mi (9.7 km) downstream from Slate Creek, 9.7 mi (15.6 km) north of Metaline Falls and at mile 16.1 (25.9 km).

DRAINAGE AREA.--25,200 mi^2 (65,300 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1908 to September 1910 (gage heights only), October 1912 to current year. Prior to October 1928, published as Clark Fork at Metaline Falls, October 1928 to September 1937 as Clark Fork below Z Canyon, near Metaline Falls, and October 1938 to September 1964 as "below Z Canyon, near Metaline Falls." Concurrent records published for present site December 1962 to September 1964.

REVISED RECORDS.--WSP 442: 1913. WSP 1716: 1919.

GAGE.--Water-stage recorder. Datum of gage is 1,700 ft (518.21 m) city of Seattle Boundary Dam datum. Prior to Dec. 20, 1928, nonrecording gage at Metaline Falls at datum approximately 1,983.4 ft (604.54 m) National Geodetic Vertical Datum of 1929. Dec. 20, 1928, to Sept. 30, 1964, water-stage recorder at site 1.3 mi (2.1 km) upstream at datum 1,721.18 ft (524.616 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Water-discharge records good. Discharge for Jan. 30-31 and Sept. 6-8 provided by Boundary Dam project. Flow regulated by Boundary Reservoir 0.9 mi (1.4 km) upstream beginning April 1967 and by Box Canyon Reservoir beginning June 1955, Pend Oreille Lake beginning June 1952 (see sta 12392500), Flathead Lake beginning April 1938 (see sta 12371500), Hungry Horse Reservoir beginning September 1951 (see sta 12362000) and by several smaller reservoirs and powerplants. In 1946 there were diversions for irrigation of 340,000 acres (1,380 km^2) above the station and there probably has not been any appreciable change since that time.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--68 years, 27,220 ft^3/s (770.9 m^3/s), 19,720,000 acre-ft/yr (24,300 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 171,300 ft^3/s (4,850 m^3/s) June 13, 1948, gage height, 60.25 ft (18.364 m), site and datum then in use; minimum daily, 200 ft^3/s (5.66 m^3/s) Aug. 12, 1967, result of regulation; minimum observed, 109 ft^3/s (3.09 m^3/s) Apr. 23, 1967, result of regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of 69.0 ft (21.03 m), from floodmarks, at site and datum 1.3 mi (2.1 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 101,000 ft^3/s (2,860 m^3/s) May 30, gage height, 38.26 ft (11.662 m); minimum daily, 5,050 ft^3/s) (143 m^3/s) Feb. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13900	22600	13100	12900	9680	14400	13100	32400	77800	38700	11800	10000
2	17800	19100	14100	15600	10000	18600	14800	36500	63400	34500	12800	14500
3	17900	12000	17000	14000	12400	15000	10800	36300	69600	35900	7000	12700
4	17900	21400	15500	15300	15400	16600	12200	37600	70200	34000	11000	13700
5	22700	25700	16100	13800	14200	17200	12500	38100	72800	33000	12200	15000
6	22300	27300	16700	16300	14700	16700	10900	37700	76800	32300	12100	15300
7	22700	27400	16500	20400	13500	15800	14500	42600	77700	32900	12700	14900
8	20900	28100	10000	15100	14900	13300	15400	48800	78000	34500	11100	16000
9	21700	27200	12500	15800	13300	11200	19700	50700	76200	34000	9500	16300
10	20100	25000	14300	14800	12400	12900	17600	49800	72400	32800	9120	16700
11	17600	26000	16600	10500	17100	16500	16900	51000	63200	32900	10100	17400
12	15600	25300	20300	8500	12200	17900	8640	51800	51400	33100	9280	18100
13	16700	24200	19200	8330	12500	20000	9150	47900	50100	31100	8500	16300
14	16300	25000	19700	13300	13400	17600	11400	44000	64000	28000	9750	16200
15	15600	23900	17700	14300	14300	11500	16500	44300	67500	27800	9410	18500
16	16700	24600	14000	15800	14200	9410	14600	41600	79600	27100	8420	19500
17	16100	25900	18200	16400	12200	12700	14400	41000	79000	25500	7230	21200
18	18700	24100	19000	19900	10100	11800	15800	41100	79800	28100	10400	22000
19	23700	25400	22800	14200	9560	12700	14200	41700	68500	26600	10100	22100
20	22500	23000	21600	12300	9810	12300	13000	41500	62800	24900	9800	19900
21	22200	20300	22200	14300	9570	13500	17200	41900	63100	23800	10300	19200
22	24400	17800	20600	14600	9430	13100	19200	42000	64300	21000	12000	22300
23	23700	16700	19100	15400	7030	11800	23700	42700	61700	15500	12000	16700
24	24400	17500	17500	14100	5050	16700	25600	45200	53100	18300	15000	15500
25	25300	15000	17000	14000	13100	19700	25700	51000	41600	17200	17200	11400
26	25800	18800	18900	11000	14700	17900	24700	67300	38800	16800	15400	13100
27	24200	18300	15300	12000	17100	21100	27300	80200	38700	13500	17500	12900
28	24300	17300	14100	16000	16700	19700	26300	85400	37800	12800	15400	14600
29	26200	17400	11700	11900	19100	14800	29300	96800	38400	12300	11700	17300
30	24700	16300	11600	12400	---	9920	32300	99700	38800	12500	7460	19200
31	23900	---	15300	12700	---	14200	---	93300	---	13000	10200	---
TOTAL	646500	658600	518200	435930	367630	466530	527390	1601900	1877100	804400	346470	498500
MEAN	20850	21950	16720	14060	12680	15050	17580	51670	62570	25950	11180	16620
MAX	26200	28100	22800	20400	19100	21100	32300	99700	79800	38700	17500	22300
MIN	13900	12000	10000	8330	5050	9410	8640	32400	37800	12300	7000	10000
AC-FT	1282000	1306000	1028000	864700	729200	925400	1046000	3177000	3723000	1596000	687200	988800

CAL YR 1979 TOTAL 8295060 MEAN 22730 MAX 78700 MIN 4900 AC-FT 16450000
WTR YR 1980 TOTAL 8749150 MEAN 23900 MAX 99700 MIN 5050 AC-FT 17350000

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued
(National Stream-Quality Accounting Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1974 to current year.
WATER TEMPERATURE: April 1974 to current year.

INSTRUMENTATION.--Water-quality monitor since April 1974.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. In addition to the water-quality monitor record, samples were collected approximately once a month.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 242 micromhos July 17, 1974; minimum, 62 micromhos April 25, 1975.
WATER TEMPERATURES: Maximum, 24.5°C July 28-30, 1975; minimum, 0.0°C at times during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 202 micromhos Dec. 10; minimum, 132 micromhos May 17.
WATER TEMPERATURES: Maximum recorded, 21.0°C Aug. 22, 23; minimum, 0.0°C Jan. 17 to 23, Jan. 28, Feb. 8, and Feb. 11 to 27.

QUALITY WATER DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
OCT , 1979												
16...	1400	24300	164	8.5	15.0	1.0	8.1	<1	2	83	10	23
NOV												
14...	0945	24400	169	8.2	6.4	.80	8.2	<1	<1	83	8	23
DEC												
05...	1500	19600	173	8.2	2.8	.30	10.6	1	<1	79	0	22
JAN , 1980												
21...	1230	17900	177	7.5	.1	1.0	10.7	<1	<1	81	3	23
FEB												
13...	1030	20500	172	7.5	.2	.40	12.2	1	<1	85	5	23
MAR												
10...	1500	15700	158	8.3	3.0	1.2	11.0	<1	<1	85	11	24
APR												
04...	1015	24100	162	8.0	5.9	2.3	11.0	1	1	82	9	23
JUN												
05...	1415	54800	141	8.2	12.8	2.3	10.2	2	7	68	10	19
AUG												
07...	1000	19700	159	8.2	19.1	1.3	8.2	4	<1	76	2	21

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT , 1979												
16...	6.1	2.8	9	.1	.8	73	10	1.1	.1	6.1	93	94
NOV												
14...	6.1	3.2	11	.2	.9	75	11	1.0	.1	6.1	94	97
DEC												
05...	5.8	3.5	9	.2	.9	83	7.3	1.0	.1	5.6	105	96
JAN , 1980												
21...	5.8	2.7	7	.1	.9	78	8.9	1.5	.1	6.7	111	97
FEB												
13...	6.7	3.3	8	.2	.9	80	11	2.1	.1	6.5	99	102
MAR												
10...	6.1	2.9	7	.1	1.0	74	8.1	.7	.1	6.9	94	95
APR												
04...	5.9	3.9	9	.2	1.0	73	15	1.0	.1	6.7	101	101
JUN												
05...	5.0	3.2	9	.2	.9	58	17	1.1	.0	6.5	89	88
AUG												
07...	5.6	3.1	8	.2	.9	74	7.6	.9	.2	7.0	94	91

12398600 PEND OREILLLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

QUALITY WATER DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N)
OCT , 1979 16...	0	6	.01	.00	.010	.010	.01	.01	.46	.28	.47	.18
NOV 14...	0	6	.04	.04	.030	.000	.04	.00	.86	.37	.89	.52
DEC 05...	0	5	.10	.01	.020	.010	.02	.01	.43	.38	.45	.06
JAN , 1980 21...	0	5	.05	.04	.020	.020	.02	.03	.77	.56	.79	.21
FEB 13...	0	5	.03	.04	.020	.000	.02	.00	.30	.23	.32	.09
MAR 10...	0	3	.06	.06	.030	.030	.04	.04	.78	.45	.81	.33
APR 04...	0	6	.01	.00	.020	.020	.02	.03	.43	.32	.45	.11
JUN 05...	0	13	.00	.01	.000	.000	.00	.00	.51	--	.51	.00
AUG 07...	0	5	.00	.00	.110	.120	.13	.15	.89	.88	1.00	.00

DATE	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS TOTAL (MG/L AS PO4)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)
OCT , 1979 16...	.29	.48	2.1	.010	.03	.010	--	2.3	1.4	4	262
NOV 14...	.37	.93	4.1	.010	.03	.010	2.9	--	--	3	198
DEC 05...	.39	.55	2.4	.010	.03	.000	2.1	--	--	1	53
JAN , 1980 21...	.58	.84	3.7	.020	.06	.010	--	4.1	.1	2	97
FEB 13...	.23	.35	1.6	.000	.00	.000	1.5	--	--	1	55
MAR 10...	.48	.87	3.9	.010	.03	.010	1.8	--	--	5	212
APR 04...	.34	.46	2.0	.030	.09	.030	--	3.1	.3	6	390
JUN 05...	--	.51	2.3	.020	.06	.010	5.8	--	--	11	1630
AUG 07...	1.0	1.0	4.4	.030	.09	.010	--	4.9	.1	4	213

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDED TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDED RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)
OCT , 1979 16...	1400	2	0	2	300	200	70	1	0	<1
DEC 05...	1500	--	--	--	--	--	--	--	--	--
JAN , 1980 21...	1230	1	0	1	100	30	70	1	0	<1
MAR 10...	1500	--	--	--	--	--	--	--	--	--
APR 04...	1015	1	0	1	200	100	60	1	0	<1
JUN 05...	1415	--	--	--	--	--	--	--	--	--
AUG 07...	1000	3	1	2	100	30	70	1	--	<1

DATE	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, SUS- PENDED RECOV. (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDED RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)
OCT , 1979 16...	0	0	0	0	0	<3	59	47	12	60
DEC 05...	--	--	--	--	--	--	--	--	--	--
JAN , 1980 21...	0	0	0	0	0	<3	10	10	0	90
MAR 10...	--	--	--	--	--	--	--	--	--	--
APR 04...	0	0	0	1	0	<3	5	0	6	170
JUN 05...	--	--	--	--	--	--	--	--	--	--
AUG 07...	0	0	0	3	--	<3	11	8	3	110

12398600 PEND OREILLLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

QUALITY WATER DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)
OCT , 1979										
16...	50	<10	34	29	5	4	3	<1	.1	.1
DEC										
05...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
21...	80	10	6	6	0	10	7	3	.7	.7
MAR										
10...	--	--	--	--	--	--	--	--	--	--
APR										
04...	150	20	18	14	4	10	2	8	1.2	.3
JUN										
05...	--	--	--	--	--	--	--	--	--	--
AUG										
07...	--	<10	15	12	3	20	20	5	.1	.0

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1979										
16...	.0	0	0	0	0	0	0	20	0	20
DEC										
05...	--	--	--	--	0	--	--	--	--	--
JAN , 1980										
21...	.0	0	0	0	0	0	0	10	5	5
MAR										
10...	--	--	--	--	2	--	--	--	--	--
APR										
04...	.9	0	0	0	0	0	0	30	10	20
JUN										
05...	--	--	--	--	0	--	--	--	--	--
AUG										
07...	.7	0	0	0	0	0	0	20	10	6

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
OCT , 1979					
16...	1400	7.09	7.98	3.07	2.28
JAN , 1980					
21...	1230	.000	.000	.000	.000
APR					
04...	1015	.080	.150	.000	.000

12398600 PEND OREILLLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	174	172	173	174	172	172	179	177	178	192	189	191
2	174	173	173	174	172	172	179	178	179	191	189	190
3	174	173	173	---	---	---	179	178	179	191	188	189
4	174	172	173	175	174	174	180	179	179	189	185	188
5	174	173	173	175	174	174	---	---	---	188	183	186
6	175	174	174	175	173	174	180	179	180	187	185	187
7	175	174	175	174	172	173	181	179	180	187	183	186
8	175	175	175	175	174	174	181	179	180	187	182	185
9	178	175	176	177	174	176	195	180	187	186	180	184
10	178	177	178	177	176	177	202	193	196	185	180	182
11	179	178	178	177	176	176	---	---	---	185	178	181
12	180	178	179	177	176	177	---	---	---	185	177	182
13	179	178	178	177	176	177	---	---	---	184	178	182
14	179	177	178	177	176	176	---	---	---	183	180	182
15	178	175	176	177	176	177	---	---	---	184	180	182
16	176	173	174	180	177	178	---	---	---	183	179	182
17	174	169	171	181	180	180	---	---	---	184	179	183
18	170	167	168	181	180	180	---	---	---	183	179	182
19	167	165	166	180	179	180	---	---	---	179	178	179
20	165	164	164	180	178	179	---	---	---	179	176	178
21	164	163	164	179	177	178	---	---	---	180	176	178
22	166	164	165	179	177	178	---	---	---	177	175	177
23	170	167	168	179	178	179	---	---	---	178	174	176
24	172	170	171	179	178	179	---	---	---	177	173	175
25	173	172	172	179	177	178	---	---	---	179	175	176
26	173	172	173	178	176	177	194	193	194	180	174	177
27	174	173	174	178	176	176	196	190	193	186	176	180
28	174	173	173	177	175	176	197	189	194	185	179	182
29	173	173	173	177	176	176	195	191	194	188	181	183
30	173	172	173	179	176	177	193	189	192	187	181	184
31	174	172	173	---	---	---	193	189	192	189	182	185
MONTH	180	163	173	181	172	177	202	177	186	192	173	182

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	188	183	185	176	176	176	178	174	176	151	149	150
2	190	181	185	176	175	176	177	174	176	152	147	149
3	198	184	186	177	176	176	178	175	177	147	143	144
4	188	186	187	178	176	176	178	175	176	143	142	143
5	188	186	188	179	175	176	178	176	177	146	143	144
6	191	188	189	177	174	175	178	174	176	147	145	146
7	194	190	191	176	173	174	177	173	174	145	139	142
8	191	189	191	175	173	174	175	172	173	142	140	141
9	191	189	190	178	172	174	174	173	174	142	140	141
10	191	188	189	179	171	173	175	171	172	146	142	144
11	190	187	188	179	171	173	172	169	171	148	145	147
12	190	186	188	172	170	171	172	169	170	146	140	143
13	190	183	186	173	171	172	172	168	171	140	139	139
14	190	183	185	174	170	171	172	169	170	141	139	140
15	187	182	184	171	167	169	171	167	169	141	136	138
16	188	181	183	170	166	168	173	169	171	136	133	134
17	181	180	181	174	167	169	173	170	171	134	132	133
18	183	180	180	177	167	171	173	170	171	137	134	135
19	185	179	181	174	168	171	173	170	171	138	136	137
20	185	180	182	179	172	174	171	169	170	137	135	136
21	187	181	182	181	172	175	169	165	167	141	137	139
22	187	181	183	179	173	175	167	164	165	141	137	139
23	189	182	185	179	174	176	167	162	164	137	134	135
24	189	183	186	178	171	173	164	160	162	136	134	134
25	187	184	186	174	170	171	160	156	158	138	136	137
26	186	184	185	174	170	171	157	154	155	140	138	139
27	189	182	183	174	171	172	158	155	156	148	141	145
28	183	179	181	175	172	174	161	157	158	147	143	145
29	178	176	177	176	173	175	160	154	156	153	146	150
30	---	---	---	176	173	175	154	150	152	151	150	150
31	---	---	---	183	174	176	---	---	---	153	149	151
MONTH	198	176	185	183	166	173	178	150	168	153	132	142

12398600 PEND OREILLLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	154	153	154				---	---	---	165	162	163
2	154	154	154				---	---	---	165	163	164
3	155	154	154				---	---	---	166	164	165
4	155	154	155				---	---	---	166	164	165
5	157	156	156				---	---	---	167	165	166
6	157	154	156				---	---	---	168	166	167
7	154	152	152				---	---	---	168	167	167
8	154	152	153				---	---	---	168	166	167
9	154	153	154				---	---	---	168	166	167
10	154	153	154				---	---	---	166	165	165
11	156	154	155				---	---	---	166	164	165
12	158	155	156				---	---	---	166	164	165
13	158	156	157				---	---	---	166	164	164
14	---	---	---				---	---	---	165	164	164
15	---	---	---				---	---	---	166	165	166
16	---	---	---				---	---	---	167	166	167
17	---	---	---				---	---	---	168	167	168
18	---	---	---				---	---	---	169	168	168
19	---	---	---				---	---	---	169	168	168
20	---	---	---				---	---	---	168	167	168
21	---	---	---				---	---	---	169	167	168
22	---	---	---				165	164	165	171	169	170
23	---	---	---				166	164	165	173	171	172
24	---	---	---				165	163	164	173	172	173
25	---	---	---				164	163	164	174	172	173
26	---	---	---				165	163	164	174	172	173
27	---	---	---				164	161	162	174	173	173
28	---	---	---				161	159	160	174	173	173
29	---	---	---				162	161	161	174	172	173
30	---	---	---				163	161	162	173	171	172
31	---	---	---				164	161	162	---	---	---
MONTH	158	152	155				166	159	163	174	162	168

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	17.5	17.5	17.5	10.5	10.0	10.5	4.0	3.0	3.5	4.0	4.0	4.0
2	17.5	17.0	17.0	10.0	10.0	10.0	3.0	3.0	3.0	4.0	4.0	4.0
3	17.0	16.5	17.0	---	---	---	3.0	2.5	3.0	4.0	3.5	4.0
4	16.5	16.5	16.5	9.5	9.5	9.5	3.0	2.5	3.0	3.5	3.5	3.5
5	16.5	16.0	16.0	9.5	9.0	9.5	---	---	---	3.5	3.5	3.5
6	16.0	16.0	15.0	9.0	9.0	9.0	3.0	3.0	3.0	3.5	3.6	3.0
7	16.0	16.0	16.0	9.0	9.0	9.0	3.0	3.0	3.0	3.0	3.0	3.0
8	16.0	15.5	16.0	9.0	8.5	9.0	3.0	3.0	3.0	3.0	2.0	2.5
9	16.0	15.5	16.0	8.5	8.5	8.5	3.5	3.0	3.0	2.0	1.5	2.0
10	16.0	15.5	15.5	8.5	8.0	8.0	3.5	3.5	3.5	1.5	1.0	1.5
11	16.0	15.5	15.5	8.0	7.0	7.5	---	---	---	1.0	.5	1.0
12	15.5	15.5	15.5	7.0	7.0	7.0	---	---	---	.5	.5	.5
13	15.5	15.5	15.5	7.0	6.5	6.5	---	---	---	.5	.5	.5
14	15.5	15.0	15.0	6.5	6.5	6.5	---	---	---	.5	.5	.5
15	15.5	15.0	15.0	6.5	6.5	6.5	---	---	---	.5	.5	.5
16	15.0	15.0	15.0	6.5	6.5	6.5	---	---	---	.5	.5	.5
17	15.0	15.0	15.0	6.5	6.0	6.5	---	---	---	.5	.0	.5
18	15.0	14.5	14.5	6.5	6.0	6.0	---	---	---	.0	.0	.0
19	14.5	14.0	14.5	6.0	6.0	6.0	---	---	---	.0	.0	.0
20	14.0	13.5	14.0	6.0	5.5	6.0	---	---	---	.0	.0	.0
21	13.5	13.0	13.5	6.0	5.5	5.5	---	---	---	.0	.0	.0
22	13.0	12.5	13.0	5.5	5.0	5.5	---	---	---	.0	.0	.0
23	12.5	12.5	12.5	5.0	5.0	5.0	---	---	---	.5	.0	.0
24	12.5	12.5	12.5	5.0	5.0	5.0	---	---	---	.5	.5	.5
25	12.5	12.0	12.0	5.0	5.0	5.0	---	---	---	.5	.5	.5
26	12.0	12.0	12.0	5.0	5.0	5.0	3.5	3.5	3.5	.5	.5	.5
27	12.0	11.5	12.0	5.0	4.5	5.0	4.0	3.5	3.5	.5	.5	.5
28	11.5	11.5	11.5	4.5	4.5	4.5	4.0	3.5	4.0	.5	.0	.5
29	11.5	11.5	11.5	4.5	4.0	4.5	4.0	4.0	4.0	.5	.5	.5
30	11.5	11.0	11.5	4.5	4.0	4.0	4.0	4.0	4.0	.5	.5	.5
31	11.0	10.5	11.0	---	---	---	4.0	4.0	4.0	.5	.5	.5
MONTH	17.5	10.5	14.5	10.5	4.0	7.0	4.0	2.5	3.5	4.0	.0	1.5

12398600 PEND OREILLLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.5	.5	.5	.5	.5	6.0	5.5	6.0	12.5	12.0	12.0
2	.5	.5	.5	1.5	.5	1.0	6.0	6.0	6.0	12.5	12.0	12.0
3	.5	.5	.5	2.0	1.5	2.0	6.0	6.0	6.0	13.0	12.0	12.5
4	.5	.5	.5	2.5	2.0	2.5	6.0	6.0	6.0	13.5	13.0	13.0
5	.5	.5	.5	3.0	2.5	2.5	6.5	6.0	6.0	13.5	13.0	13.0
6	.5	.5	.5	3.0	2.5	3.0	6.5	6.5	6.5	13.0	12.5	13.0
7	.5	.5	.5	3.0	3.0	3.0	6.5	6.5	6.5	14.0	13.0	13.5
8	.5	.0	.5	3.0	3.0	3.0	7.0	6.5	7.0	14.5	14.0	14.0
9	.5	.5	.5	3.0	3.0	3.0	7.0	7.0	7.0	14.0	13.5	14.0
10	.5	.5	.5	3.0	3.0	3.0	7.0	7.0	7.0	13.5	13.0	13.0
11	.5	.0	.0	3.0	3.0	3.0	7.0	7.0	7.0	13.0	12.0	12.5
12	.5	.0	.0	3.0	3.0	3.0	7.5	7.0	7.5	13.0	12.5	12.5
13	.0	.0	.0	3.0	3.0	3.0	7.5	7.0	7.5	13.0	13.0	13.0
14	.0	.0	.0	3.0	2.5	3.0	8.0	7.0	7.5	13.0	12.5	12.5
15	.0	.0	.0	2.5	2.0	2.5	8.0	7.0	7.5	13.5	12.5	13.0
16	.0	.0	.0	2.0	2.0	2.0	8.5	8.0	8.0	13.5	13.5	13.5
17	.0	.0	.0	2.5	2.0	2.0	8.5	8.5	8.5	13.5	13.0	13.0
18	.0	.0	.0	2.5	2.5	2.5	9.0	8.5	9.0	13.0	13.0	13.0
19	.5	.0	.0	3.5	2.5	3.0	9.5	9.0	9.5	13.0	13.0	13.0
20	.0	.0	.0	3.5	3.0	3.5	9.5	9.5	9.5	13.5	13.0	13.0
21	.5	.0	.0	4.0	3.5	4.0	9.5	9.5	9.5	13.0	12.5	13.0
22	.5	.0	.0	4.5	4.0	4.0	10.0	9.5	10.0	13.5	12.5	13.0
23	.5	.0	.0	4.5	4.5	4.5	10.5	10.0	10.5	14.0	13.5	14.0
24	.0	.0	.0	5.0	4.5	4.5	11.0	10.5	11.0	14.0	13.5	14.0
25	.5	.0	.0	5.0	4.5	5.0	11.5	11.0	11.0	13.5	13.0	13.5
26	.5	.0	.0	5.5	5.0	5.0	11.5	11.0	11.5	13.5	13.0	13.5
27	.5	.0	.5	5.5	5.5	5.5	12.0	11.5	11.5	13.0	12.0	12.5
28	.5	.5	.5	5.5	5.5	5.5	12.0	11.5	12.0	13.0	12.0	12.5
29	.5	.5	.5	5.5	5.5	5.5	12.5	12.0	12.0	13.0	12.5	12.5
30	---	---	---	6.0	5.5	6.0	12.5	12.0	12.0	13.0	12.5	12.5
31	---	---	---	6.0	5.5	5.5	---	---	---	13.5	13.0	13.0
MONTH	.5	.0	.0	6.0	.5	3.5	12.5	5.5	8.5	14.5	12.0	13.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	13.5	13.5				---	---	---	19.0	18.5	18.5
2	13.5	13.5	13.5				---	---	---	18.5	18.5	18.5
3	13.5	13.5	13.5				---	---	---	18.5	18.0	18.0
4	13.5	13.0	13.0				---	---	---	18.0	17.5	18.0
5	13.0	12.5	12.5				---	---	---	17.5	17.5	17.5
6	13.0	13.0	13.0				---	---	---	17.5	17.5	17.5
7	13.5	13.0	13.5				---	---	---	17.5	17.5	17.5
8	14.0	13.5	13.5				---	---	---	18.0	17.5	17.5
9	14.5	14.0	14.0				---	---	---	18.0	17.5	18.0
10	14.5	14.5	14.5				---	---	---	18.0	17.5	18.0
11	14.5	14.5	14.5				---	---	---	18.0	18.0	18.0
12	---	---	---				---	---	---	18.0	18.0	18.0
13	---	---	---				---	---	---	18.0	18.0	18.0
14	---	---	---				---	---	---	18.0	18.0	18.0
15	---	---	---				---	---	---	18.0	18.0	18.0
16	---	---	---				---	---	---	18.0	18.0	18.0
17	---	---	---				---	---	---	18.0	18.0	18.0
18	---	---	---				---	---	---	18.0	18.0	18.0
19	---	---	---				---	---	---	18.0	17.5	17.5
20	---	---	---				---	---	---	17.5	17.5	17.5
21	---	---	---				---	---	---	17.5	17.0	17.0
22	---	---	---				21.0	20.0	21.0	17.0	16.5	16.5
23	---	---	---				21.0	20.5	21.0	16.5	16.0	16.0
24	---	---	---				20.5	20.0	20.5	16.0	15.5	16.0
25	---	---	---				20.5	20.0	20.0	16.0	15.5	15.5
26	---	---	---				20.0	20.0	20.0	15.5	15.5	15.5
27	---	---	---				20.0	20.0	20.0	15.5	15.5	15.5
28	---	---	---				20.0	19.5	20.0	15.5	15.0	15.5
29	---	---	---				20.0	19.5	19.5	15.5	15.0	15.0
30	---	---	---				19.5	19.0	19.5	15.5	15.0	15.0
31	---	---	---				19.0	19.0	19.0	---	---	---
MONTH	14.5	12.5	13.5				21.0	19.0	20.0	19.0	15.0	17.0

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE	NOV 14,79	MAR 10,80	JUN 5,80	AUG 7,80
TIME	0945	1500	1415	1000
TOTAL CELLS/ML	5600	5600	4200	6200
DIVERSITY: DIVISION	0.3	0.7	1.3	0.5
.CLASS	0.3	0.7	1.3	0.5
..ORDER	0.4	0.8	1.8	0.5
...FAMILY	0.7	0.9	1.9	1.1
....GENUS	0.8	1.0	2.0	1.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	210	5	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	*	0	--	-	26	1	78	1
....OOCYSTIS	100	2	--	-	--	-	--	-
....SELENASTRUM	*	0	--	-	--	-	--	-
....TREUBARIA	*	0	--	-	*	0	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	*	0	*	0
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	*	0	260	5	--	-	*	0
....MELOSIRA	52	1	90	2	220	5	310	5
....STEPHANODISCUS	--	-	*	0	240	6	--	-
..PENNALES								
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	410	7	1200#	30	--	-
....FRAGILARIA	--	-	--	-	--	-	*	0
....SYNEDRA	--	-	100	2	*	0	*	0
...NITZSCHIACEAE								
....NITZSCHIA	*	0	39	1	39	1	39	1
...SURIRELLACEAE								
....SURIRELLA	*	0	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	*	0	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	*	0	--	-	77	2	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	5000#	89	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	--	-	4800#	78
...OSCILLATORIACEAE								
....OSCILLATORIA	310	6	4600#	83	2100#	50	830	13
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	*	0	*	0	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

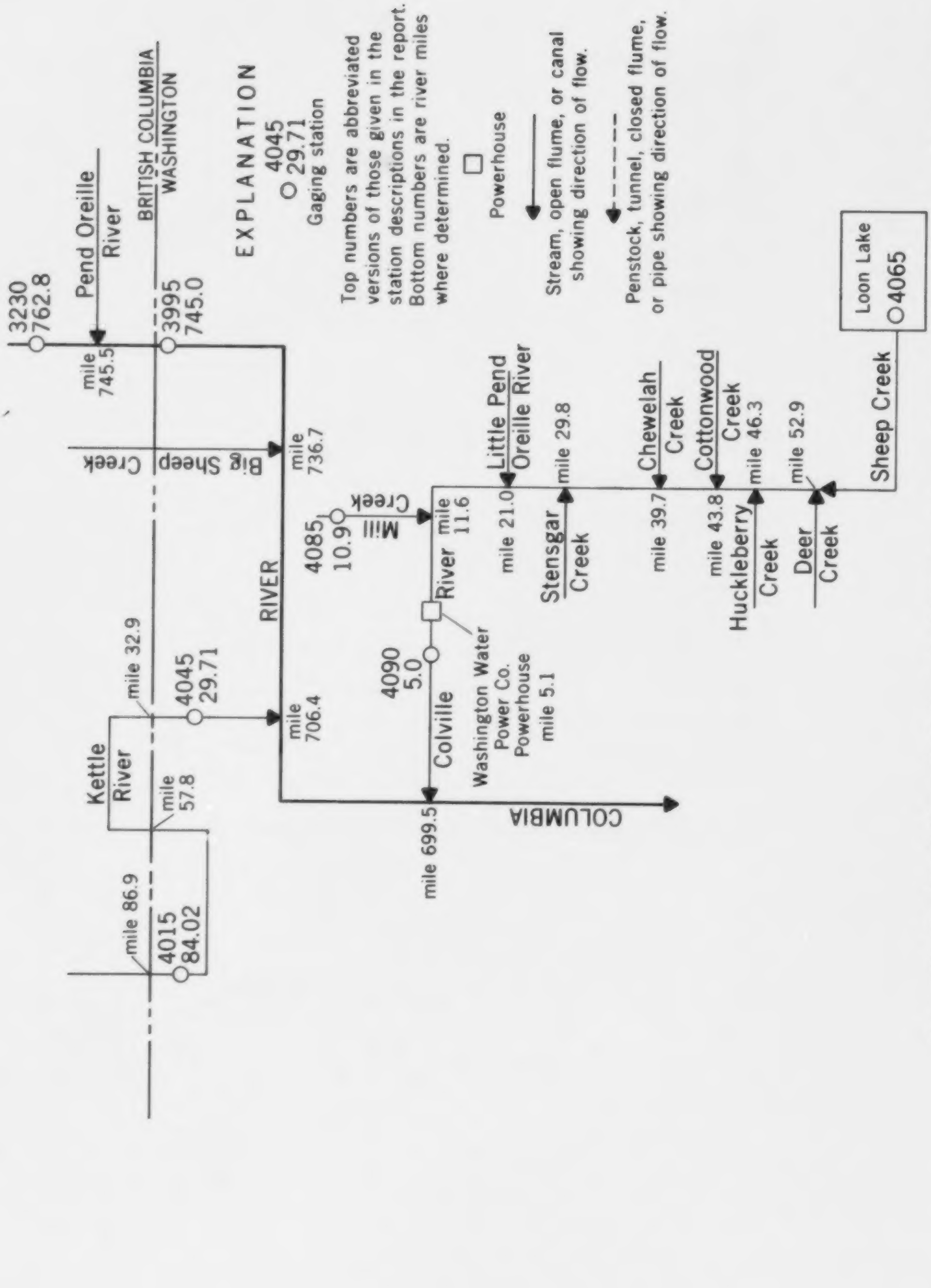

3230
762.8
Pend Oreille River
mile 745.5
BRITISH COLUMBIA
WASHINGTON
3995
745.0
Big Sheep Creek
mile 736.7
RIVER
Kettle River
mile 86.9
4015
84.02
mile 57.8
mile 32.9
4045
29.71
mile 706.4
COLUMBIA
mile 699.5
Colville River
4090
5.0
Washington Water Power Co. Powerhouse mile 5.1
4085
10.9
Mill Creek
mile 11.6
mile 21.0
Little Pend Oreille River
Stensgar Creek
mile 29.8
mile 39.7
Chewelah Creek
mile 43.8
Cottonwood Creek
Huckleberry Creek
mile 46.3
Deer Creek
mile 52.9
Sheep Creek
Loon Lake
4065
EXPLANATION
4045
○ 29.71
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
□ Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 7. Gaging stations in Columbia River basin from International Boundary to Colville River.

12399500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY
(International gaging station)

LOCATION.--Lat 49°00'00", long 117°37'42", in NE¼SE¼ sec.4, T.40 N., R.41 E., Stevens County, Hydrologic Unit 17020001, on left bank at international boundary, 0.5 mi (0.8 km) downstream from Pend Oreille River, and at mile 745.0 (1,198.7 km).

DRAINAGE AREA.--59,700 mi^2 (154,600 km^2), approximately.

PERIOD OF RECORD.--October 1937 to current year. Prior to March 1938 monthly discharge only, published in WSP 1316.

REVISED RECORDS.--WSP 932: 1937(m), (1938(M), 1939(m).

GAGE.--Water-stage recorder. Datum of gage is 0.00 ft (0.000 m) Bureau of Reclamation 1937 datum. Prior to Apr. 27, 1939, nonrecording gage at same site and datum. Since May 31, 1942, auxiliary water-stage recorder and Jan. 1 to May 30, 1942, auxiliary nonrecording gage 2.2 mi (3.5 km) downstream from base gage at same datum.

REMARKS.--Records good. Flow regulated by eight major reservoir and numerous smaller reservoirs and powerplants. It was estimated that 346,700 acres (1,400 km^2) were under irrigation in the United States in 1946 with diversions for irrigation of an additional 35,000 acres (142 km^2) in Canada. Records for October 1 to November 8 provided by the Water Survey of Canada.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--43 years, 99,910 ft^3/s (2,830 m^3/s), 72,380,000 acre-ft/yr (89,200 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 550,100 ft^3/s (15,600 m^3/s) June 12, 1948, elevation, 1,338.13 ft (407.862 m); minimum, 18,000 ft^3/s (510 m^3/s) Feb. 7, 1954, elevation, 1,289.38 ft (393.003 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a stage of 1,346 ft (410.3 m), from information by Bureau of Reclamation, discharge, 680,000 ft^3/s (19,300 m^3/s).

A discharge of about 12,900 ft^3/s (365 m^3/s) occurred Jan. 30 or 31, 1937, based on information from other gaging stations, elevation, 1,287.9 ft (392.55 m), from rating curve extended below 1,291.6 ft (393.68 m) and may have been as low sometime in January 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 168,000 ft^3/s (4,760 m^3/s) May 30, elevation, 1,310.57 ft (399.462 m); minimum, 26,700 ft^3/s (756 m^3/s) Apr. 8, elevation, 1,291.24 ft (394.570 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74900	66200	76900	63000	86200	59400	42300	122000	141000	130000	92600	53000
2	77500	60900	91600	66600	88700	62700	42600	127000	122000	133000	87100	51300
3	79300	58800	109000	66100	81600	59100	36300	128000	128000	131000	80700	52500
4	75600	60300	123000	70900	69500	61600	37900	122000	127000	119000	93100	54000
5	80400	71700	128000	70200	68700	62300	37500	112000	128000	109000	104000	55400
6	75300	90100	122000	75300	66100	60900	33000	114000	130000	107000	105000	54600
7	71900	91200	125000	83400	65300	59800	38000	123000	133000	106000	94500	60500
8	65600	82600	121000	79000	67400	54400	33900	126000	132000	108000	88600	77100
9	65500	85800	119000	75800	65600	52600	41600	136000	131000	110000	89100	83400
10	63600	84900	120000	78200	67100	52400	50000	138000	128000	107000	92100	89600
11	62200	80700	119000	73400	76100	54000	52900	135000	121000	105000	86200	90800
12	63000	72700	124000	68100	71500	58000	43000	135000	113000	108000	81400	87400
13	61000	67300	124000	72200	67600	58200	45500	128000	121000	106000	82400	89600
14	67800	70600	123000	73300	67000	59100	48100	118000	133000	102000	85900	83700
15	80600	71300	125000	78800	70000	56300	55400	118000	134000	101000	88300	70300
16	86500	69000	112000	85400	73600	53500	55800	114000	150000	98500	86400	63600
17	86200	68300	115000	87400	71200	46300	56600	112000	145000	109000	89500	57600
18	86900	73600	118000	87700	73300	45700	65600	113000	154000	114000	98000	59100
19	90100	76700	125000	85500	76700	44400	59800	112000	154000	105000	93800	50200
20	91200	78300	122000	80600	72000	46100	67800	111000	147000	99800	93100	49300
21	89000	75500	120000	75500	69900	52300	75500	111000	143000	98300	98800	53400
22	91300	64800	115000	75900	69900	54400	77600	115000	141000	95900	102000	45800
23	91100	61800	106000	66800	64500	51600	83200	115000	140000	88400	102000	48300
24	89800	65000	97400	65400	56500	46500	92600	114000	138000	90200	102000	47300
25	89900	67700	77300	65500	56400	43600	98100	117000	134000	93800	87200	42100
26	78000	83400	73000	62700	56100	48800	94900	129000	122000	92400	77000	40300
27	61600	90500	69800	67600	60400	51000	105000	142000	118000	89000	76300	44700
28	59400	89300	65700	79000	61500	52300	111000	146000	114000	87500	79700	50600
29	53500	85600	60600	77700	64900	44800	128000	158000	114000	94000	78900	45200
30	46800	83300	60800	75300	---	43300	126000	164000	115000	85500	71200	55900
31	51400	---	61300	83200	---	41100	---	157000	---	91400	66800	---
TOTAL	2306900	2247900	3249400	2315500	2005300	1636500	1935500	3912000	3951000	3214700	2753700	1806600
MEAN	74420	74930	104800	74690	69150	52790	64520	126200	131700	103700	88830	60220
MAX	91300	91200	128000	87700	88700	62700	128000	164000	154000	133000	105000	90800
MIN	46800	58800	60600	62700	56100	41100	33000	111000	113000	85500	66800	40300
AC-FT	4576000	4459000	6445000	4593000	3978000	3246000	3839000	7759000	7837000	6376000	5462000	3583000

CAL YR 1979 TOTAL 32534400 MEAN 89140 MAX 159000 MIN 42800 AC-FT 64530000
WTR YR 1980 TOTAL 31335000 MEAN 85610 MAX 164000 MIN 33000 AC-FT 62150000

12400520 COLUMBIA RIVER AT NORTHPORT, WA
(National stream-quality accounting network station)

LOCATION.--Lat 48°55'21", long 117°46'32", in SW¼SW¼ sec.33, T.40 N., R.40 E., Stevens County, Hydrologic Unit 17020001, at State Highway 25 bridge at Northport, 9.9 mi (15.9 km) downstream from gaging station at international boundary, and at mile 735.1 (1,182.8 km).

DRAINAGE AREA.--60,200 mi^2 (155,900 km^2), approximately.

PERIOD OF RECORD.--Water years 1910-11, 1952 to current year. Prior to November 1951 published as "at Northport". November 1951 to September 1957 published as 12399500 "at international boundary", October 1957 to September 1963 as "at Northport". October 1963 to September 1973 as "at international boundary".

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1951 to September 1975, April 1976 to current year.
pH: November 1951 to September 1969.
WATER TEMPERATURES: November 1951 to current year.
SUSPENDED-SEDIMENT DISCHARGE: February 1910 to January 1911.

INSTRUMENTATION.--Temperature recorder since October 1974; specific conductance recorder since April 1976.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. In addition to the water-quality monitor record, samples were collected approximately once a month.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 285 micromhos Apr. 2, 1972; minimum, 96 micromhos Aug. 7, 1976, Sept. 5, 1978.
WATER TEMPERATURES: Maximum, 21.0°C May 14, 19, 1959; minimum, 0.0°C on several days during January in 1960, 1962, and 1963.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 183 micromhos Apr. 8; minimum recorded, 108 micromhos Aug. 9.
WATER TEMPERATURES: Maximum recorded, 19.5°C July 31, Aug. 4-7; minimum recorded, 2.0°C Jan. 10-15.

WATER QUALITY DATA OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT , 1979												
17...	1215	E86200	132	7.8	13.4	1.2	9.6	13	2	67	14	20
NOV												
08...	1130	E85000	140	8.0	8.7	2.4	10.6	2	6	71	8	21
DEC												
06...	1045	E122000	150	7.9	5.9	.90	11.7	7	3	68	7	20
JAN , 1980												
16...	1400	E85400	152	7.4	2.7	--	12.8	16	3	71	7	21
FEB												
12...	1130	75300	165	7.4	2.9	.70	11.4	5	<1	76	11	22
MAR												
11...	1100	50100	171	7.9	2.8	1.3	10.9	5	1	81	19	24
APR												
03...	1100	37000	158	7.5	4.9	1.9	11.2	--	--	80	21	24
JUN												
05...	0900	126000	135	8.0	10.9	1.9	11.1	27	11	65	12	19
AUG												
06...	1130	E105000	126	8.0	19.1	1.0	10.0	15	5	56	6	17

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
OCT , 1979												
17...	4.2	1.4	4	.0	.7	53	1.3	15	.8	.1	3.6	84
NOV												
08...	4.6	2.3	6	.1	.7	63	1.0	15	1.3	.2	4.1	89
DEC												
06...	4.6	1.7	5	.0	.6	61	1.2	12	1.0	.1	3.8	80
JAN , 1980												
16...	4.5	1.7	4	.0	.8	64	4.0	15	.9	.2	4.5	95
FEB												
12...	5.3	2.1	5	.1	.7	65	4.1	16	1.6	.1	4.4	96
MAR												
11...	5.2	2.7	6	.1	.8	62	1.2	18	.9	.2	4.7	93
APR												
03...	5.0	2.2	5	.1	.8	59	2.9	22	1.3	.2	4.9	96
JUN												
05...	4.4	2.2	6	.1	.7	53	.8	11	1.1	.1	5.9	85
AUG												
06...	3.3	1.5	5	.0	.7	50	.7	9.2	.6	.2	4.5	70

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

WATER QUALITY DATA OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)
OCT , 1979 17...	77	.11	--	.06	.03	.040	.010	.05	.01	.67	.30	.71
NOV 08...	87	.12	--	.08	.09	.070	.060	.08	.07	.28	.14	.35
DEC 06...	80	.10	--	.26	.12	.050	.060	.06	.07	.35	.16	.40
JAN , 1980 16...	87	.12	--	.11	.12	.000	.010	.00	.01	1.1	.96	1.10
FEB 12...	91	.13	19518	.13	.14	.110	.060	.13	.07	.39	.37	.50
MAR 11...	93	.12	12580	.13	.13	.120	.120	.15	.15	.19	.59	.31
APR 03...	96	.13	9590	.11	.11	.200	.250	.24	.32	.33	.31	.53
JUN 05...	76	.11	28917	.02	.02	.000	.000	.00	.00	.41	--	.41
AUG 06...	67	.09	--	.08	.06	.100	.110	.12	.14	1.6	.35	1.70

DATE	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
OCT , 1979 17...	.40	.31	.77	3.4	.020	.06	.010	--	1.7	.2	9	--
NOV 08...	.15	.20	.43	1.9	.050	.15	.040	2.1	--	--	9	--
DEC 06...	.18	.22	.66	2.9	.020	.06	.010	2.7	--	--	6	--
JAN , 1980 16...	.13	.97	1.2	5.3	.030	.09	.030	--	2.9	--	6	--
FEB 12...	.07	.43	.63	2.7	.030	.09	.020	2.6	--	--	2	407
MAR 11...	.00	.71	.44	1.9	.080	.25	.080	.9	--	--	5	676
APR 03...	.00	.56	.64	2.8	.080	.25	.030	--	3.1	.3	6	599
JUN 05...	.00	--	.43	1.9	.050	.15	.010	4.3	--	--	7	2381
AUG 06...	1.2	.46	1.7	7.8	.040	.12	.040	--	3.8	.1	7	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)
OCT , 1979 17...	1215	1	0	1	200	200	30	2	1	<1
DEC 06...	1045	--	--	--	--	--	--	--	--	--
JAN , 1980 06...	1400	2	2	0	100	60	40	1	0	3
MAR 11...	1100	--	--	--	--	--	--	--	--	--
APR 03...	1100	1	0	1	100	70	30	1	0	<1
JUN 05...	0900	--	--	--	--	--	--	--	--	--
AUG 06...	1130	1	0	1	100	70	30	1	--	<1

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT , 1979 17...	0	0	0	0	0	<3	100	86	14	310
DEC 06...	--	--	--	--	--	--	--	--	--	--
JAN , 1980 06...	10	0	10	3	0	<3	42	42	0	200
MAR 11...	--	--	--	--	--	--	--	--	--	--
APR 03...	0	0	0	1	0	<3	13	9	4	200
JUN 05...	--	--	--	--	--	--	--	--	--	--
AUG 06...	10	10	0	3	--	<3	26	22	4	190

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WATER QUALITY DATA OCTOBER 1979 TO SEPTEMBER 1980

DATE	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)
OCT , 1979										
17...	300	<10	71	53	18	20	10	8	.1	.1
DEC										
06...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
06...	190	<10	27	22	5	0	0	4	.1	.1
MAR										
11...	--	--	--	--	--	--	--	--	--	--
APR										
03...	190	<10	22	17	5	30	10	20	1.3	.3
JUN										
05...	--	--	--	--	--	--	--	--	--	--
AUG										
06...	--	<10	12	10	2	10	6	4	.1	.0

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1979										
17...	.0	0	0	0	0	0	0	80	20	60
DEC										
06...	--	--	--	--	0	--	--	--	--	--
JAN , 1980										
06...	.0	0	0	0	0	0	0	80	20	60
MAR										
11...	--	--	--	--	3	--	--	--	--	--
APR										
03...	1.0	0	0	0	0	0	0	110	10	100
JUN										
05...	--	--	--	--	0	--	--	--	--	--
AUG										
06...	.1	0	0	0	2	2	0	60	40	20

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	137	122	135	167	158	164	160	154	157	158	157	157
2	137	130	134	163	156	160	159	150	153	159	157	158
3	140	128	135	159	140	153	151	149	150	159	159	159
4	140	131	136	146	141	144	150	149	150	160	158	159
5	142	132	138	158	148	153	152	149	150	161	159	160
6	144	133	139	159	151	155	152	150	151	160	158	159
7	145	138	142	161	152	157	152	149	150	159	158	158
8	149	143	146	162	152	159	151	150	151	159	157	158
9	148	139	144	161	155	159	152	150	151	159	156	158
10	151	141	146	162	160	161	154	151	152	159	157	158
11	152	141	146	161	160	161	154	151	152	159	157	158
12	144	132	140	162	158	161	153	151	151	160	159	159
13	154	135	145	163	156	159	154	150	152	160	158	159
14	152	145	148	164	157	160	153	152	152	161	158	159
15	146	135	142	168	164	166	152	149	151	161	158	159
16	141	127	136	165	155	161	153	149	152	---	---	---
17	141	133	137	168	163	165	152	150	151	---	---	---
18	140	135	137	167	162	164	152	148	151	---	---	---
19	140	136	139	161	156	159	152	150	150	---	---	---
20	142	139	141	161	156	158	152	150	151	---	---	---
21	141	139	140	164	157	162	153	151	152	---	---	---
22	141	140	140	168	156	165	153	150	152	---	---	---
23	143	137	140	167	161	164	153	150	151	---	---	---
24	146	138	142	169	161	166	153	150	152	---	---	---
25	149	145	146	171	159	166	154	153	154	---	---	---
26	149	145	147	158	153	156	154	152	153	---	---	---
27	157	148	154	159	152	155	156	155	155	---	---	---
28	162	155	159	160	156	158	157	155	156	---	---	---
29	167	160	163	161	153	159	159	156	157	---	---	---
30	168	164	167	161	157	157	158	157	157	---	---	---
31	168	164	166	---	---	---	158	157	158	---	---	---
MONTH	168	122	144	171	140	160	160	148	152	161	156	159

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1							---	---	---	129	122	126
2							---	---	---	129	124	127
3							---	---	---	126	123	126
4							174	161	168	129	126	127
5							178	171	176	129	127	128
6							182	175	178	129	119	124
7							181	175	178	125	119	123
8							183	168	176	127	124	125
9							176	166	172	130	125	128
10							171	168	169	133	129	131
11							169	154	165	135	132	134
12							170	158	166	137	134	136
13							170	166	168	137	130	134
14							166	151	160	135	129	131
15							167	159	165	138	134	136
16							168	162	165	137	131	136
17							165	161	164	135	134	135
18							162	152	157	135	133	134
19							162	156	160	135	132	134
20							161	148	157	135	130	132
21							148	144	146	135	132	134
22							145	137	141	133	129	132
23							146	141	143	127	122	123
24							145	141	143	122	121	121
25							140	128	135	121	120	120
26							136	133	135	124	121	122
27							136	133	135	125	122	123
28							134	129	131	132	125	129
29							129	119	124	134	129	133
30							123	116	119	139	135	137
31							---	---	---	139	136	137
MONTH							183	116	155	139	119	130

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	142	137	140	138	136	137	129	122	124	140	134	137
2	141	138	140	136	129	133	130	121	126	146	134	140
3	138	133	135	136	132	134	132	125	128	147	135	142
4	141	134	139	140	134	137	128	117	123	149	143	146
5	143	140	141	143	137	141	117	111	115	147	137	142
6	145	140	142	142	141	141	123	110	118	142	134	138
7	146	141	144	141	134	139	123	114	117	140	133	139
8	143	141	142	140	129	134	123	109	116	132	125	128
9	143	142	143	139	129	136	122	108	114	126	117	122
10	145	136	141	140	138	139	134	118	124	126	123	124
11	141	135	138	143	134	139	134	122	129	126	124	125
12	143	141	142	138	135	137	124	117	120	126	116	123
13	142	135	138	138	128	134	125	115	120	126	124	125
14	141	133	137	134	132	133	130	121	125	128	125	126
15	143	139	140	134	127	129	129	114	122	132	129	130
16	145	143	144	134	126	130	127	119	123	136	132	135
17	147	139	143	134	131	132	124	121	122	140	135	137
18	141	139	139	131	124	129	127	120	123	144	138	140
19	139	137	139	134	127	131	122	120	123	150	144	147
20	141	138	139	134	125	129	127	117	123	154	150	153
21	144	140	142	132	124	128	128	119	124	150	145	147
22	144	141	143	131	127	129	127	119	123	156	146	153
23	144	139	143	135	125	130	125	115	121	157	152	155
24	139	135	138	135	126	131	130	121	125	156	152	154
25	141	135	138	134	124	129	131	124	128	157	144	152
26	138	132	135	135	129	132	133	125	129	155	148	151
27	140	135	139	133	123	127	134	125	132	158	146	154
28	139	134	135	128	119	125	138	128	134	162	155	159
29	140	134	138	126	121	123	136	124	131	157	137	147
30	141	139	140	124	114	119	129	123	127	153	141	147
31	---	---	---	131	119	125	136	126	130	---	---	---
MONTH	147	132	140	143	114	132	138	108	124	162	116	141
YEAR	183	108	143									

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE	NOV 8,79		MAR 11,80		JUN 5,80		AUG 6,80	
TIME	1130		1100		0900		1130	
TOTAL CELLS/ML	6800		1200		3800		1200	
DIVERSITY: DIVISION	0.5		1.0		1.0		1.1	
.CLASS	0.5		1.0		1.0		1.1	
..ORDER	0.6		1.2		1.2		1.6	
...FAMILY	0.9		1.3		1.3		1.8	
....GENUS	1.7		1.3		1.6		1.9	

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	26	2	--	-	39	3
....OOCYSTIS	--	-	--	-	--	-	26	2
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	--	-	26	2
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	--	-	--	-	13	1
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	290	4	250#	20	--	-	100	8
....MELOSIRA	60	1	--	-	77	2	--	-
....STEPHANODISCUS	--	-	--	-	210	5	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	13	1
...FRAGILARIACEAE								
....ASTERIONELLA	69	1	--	-	800#	21	64	5
....FRAGILARIA	59	1	--	-	--	-	52	4
....SYNEDRA	94	1	65	5	180	5	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	*	0	13	1	--	-	--	-
...NAVICULACEAE								
....NAVICULA	51	1	--	-	*	0	--	-
...NITZSCHIACEAE								
....NITZSCHIA	60	1	--	-	39	1	26	2
...TABELLARIACEAE								
....TABELLARIA	34	1	--	-	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....DINOBRYON	*	0	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	--	-	39	3
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENOPSIS	*	0	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	4200#	62	880#	71	2400#	65	820#	67
....SCHIZOTHRIX	1600#	24	--	-	--	-	--	-
...RIVULARIACEAE								
....RAPHIDIOPSIS	150	2	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	13	1	*	0	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

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12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	16.0	15.5	15.5	10.0	9.5	10.0	6.0	5.5	6.0	4.0	3.5	3.5
2	15.5	15.0	15.5	9.5	9.5	9.5	6.0	5.5	6.0	4.0	3.5	3.5
3	15.0	14.0	15.0	9.5	9.5	9.5	6.0	5.5	5.5	4.0	3.5	3.5
4	15.0	14.0	14.5	10.0	9.5	9.5	6.0	6.0	6.0	4.0	3.5	3.5
5	15.0	14.0	14.5	9.5	9.5	9.5	6.0	5.5	6.0	3.5	3.5	3.5
6	15.0	14.0	14.5	9.5	9.0	9.0	6.0	5.5	6.0	3.5	3.0	3.0
7	15.0	14.0	14.5	9.0	9.0	9.0	6.0	5.5	6.0	3.0	2.5	3.0
8	14.5	14.0	14.5	8.5	8.5	8.5	6.0	5.5	5.5	3.0	2.5	2.5
9	14.5	14.0	14.5	8.5	8.5	8.5	6.0	5.5	6.0	3.0	2.5	2.5
10	14.5	14.0	14.5	8.5	8.5	8.5	6.0	5.0	5.5	2.5	2.0	2.5
11	14.5	14.0	14.0	8.5	8.0	8.5	5.5	5.0	5.5	2.5	2.0	2.0
12	14.5	14.0	14.0	8.5	7.5	8.0	5.5	5.0	5.0	2.5	2.0	2.0
13	14.5	13.5	14.0	8.0	7.5	7.5	5.0	4.5	5.0	2.5	2.0	2.0
14	14.0	14.0	14.0	7.5	7.0	7.5	5.5	5.0	5.0	2.5	2.0	2.0
15	14.5	13.5	14.0	7.5	7.0	7.0	5.0	4.5	4.5	2.0	2.0	2.0
16	14.0	13.5	13.5	7.5	7.0	7.0	4.5	4.5	4.5	---	---	---
17	13.5	13.0	13.5	7.0	7.0	7.0	4.5	4.5	4.5	---	---	---
18	13.0	13.0	13.0	7.5	7.0	7.0	4.5	4.5	4.5	---	---	---
19	13.0	12.5	13.0	7.0	7.0	7.0	4.5	4.0	4.5	---	---	---
20	12.5	12.5	12.5	7.0	7.0	7.0	4.5	4.0	4.5	---	---	---
21	12.5	12.0	12.0	7.5	7.0	7.0	4.5	4.0	4.5	---	---	---
22	12.0	12.0	12.0	7.5	6.5	7.0	4.0	4.0	4.0	---	---	---
23	12.0	11.5	11.5	7.0	7.0	7.0	4.0	3.5	3.5	---	---	---
24	11.0	11.0	11.0	7.0	6.5	6.5	4.0	3.5	3.5	---	---	---
25	11.0	10.5	11.0	7.0	6.5	6.5	4.0	4.0	4.0	---	---	---
26	11.0	11.0	11.0	6.5	6.5	6.5	4.0	3.5	4.0	---	---	---
27	11.5	11.0	11.0	6.5	6.0	6.5	4.0	4.0	4.0	---	---	---
28	11.0	10.5	11.0	6.5	6.0	6.5	4.0	4.0	4.0	---	---	---
29	10.5	10.5	10.5	6.5	5.5	6.0	4.0	4.0	4.0	---	---	---
30	10.5	10.0	10.5	6.0	5.5	6.0	4.0	4.0	4.0	---	---	---
31	10.5	10.0	10.0	---	---	---	4.0	4.0	4.0	---	---	---
MONTH	16.0	10.0	13.0	10.0	5.5	7.5	6.0	3.5	5.0	4.0	2.0	2.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1							---	---	---	8.5	7.0	8.0
2							---	---	---	8.5	8.0	8.5
3							---	---	---	8.5	8.0	8.5
4							5.0	4.5	4.5	9.0	8.0	8.5
5							5.0	4.5	5.0	9.5	8.5	9.0
6							5.0	4.5	5.0	9.5	9.0	9.0
7							5.0	4.5	5.0	9.0	8.5	9.0
8							5.0	4.5	5.0	9.5	9.0	9.0
9							5.0	4.5	5.0	9.5	9.0	9.5
10							5.5	4.5	5.0	10.0	9.5	9.5
11							5.5	4.5	5.0	10.0	9.5	10.0
12							5.5	5.0	5.0	10.0	9.5	9.5
13							6.0	5.0	5.5	10.0	9.5	10.0
14							6.0	5.5	5.5	10.0	9.5	10.0
15							6.0	5.5	5.5	10.0	9.5	9.5
16							6.0	5.5	6.0	10.5	9.5	10.0
17							6.5	5.5	6.0	10.5	10.0	10.5
18							6.5	6.0	6.5	10.5	10.0	10.0
19							6.5	6.0	6.0	10.0	10.0	10.0
20							6.0	6.0	6.0	10.0	9.5	10.0
21							6.5	6.0	6.0	10.5	9.5	10.0
22							7.0	5.5	6.5	10.0	9.5	10.0
23							7.5	6.0	6.5	9.5	9.5	9.5
24							7.0	6.5	7.0	10.5	9.5	10.0
25							7.0	6.5	7.0	11.0	10.5	10.5
26							7.5	6.5	7.0	11.5	10.5	11.0
27							8.0	7.0	7.5	11.5	11.0	11.0
28							8.0	7.0	7.5	11.0	10.5	11.0
29							7.5	7.0	7.5	11.5	11.0	11.0
30							7.5	7.0	7.0	11.0	10.5	11.0
31							---	---	---	11.5	11.0	11.0
MONTH							8.0	4.5	6.0	11.5	7.0	10.0

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.5	11.0	11.0	16.0	14.5	15.5	18.5	17.5	18.0	16.0	15.5	15.5
2	11.0	11.0	11.0	16.0	15.5	15.5	18.5	17.5	18.0	16.5	16.0	16.0
3	11.0	10.5	11.0	15.5	15.0	15.5	18.5	17.0	17.5	16.5	15.5	16.0
4	11.0	10.5	11.0	15.0	14.5	15.0	19.5	18.0	19.0	16.5	15.5	16.5
5	11.0	11.0	11.0	15.0	14.5	14.5	19.5	18.5	19.0	16.5	16.0	16.5
6	11.0	11.0	11.0	15.5	14.5	15.0	19.5	18.0	19.0	16.5	15.5	16.0
7	11.5	11.0	11.0	16.0	15.0	15.5	19.5	18.5	19.0	16.0	15.5	15.5
8	12.0	11.5	12.0	16.5	16.0	16.0	19.0	18.5	18.5	16.0	15.0	15.5
9	12.5	12.0	12.0	16.5	16.0	16.5	18.5	17.5	18.0	16.0	15.0	15.5
10	12.5	12.0	12.5	16.5	16.0	16.5	18.5	17.0	17.5	16.0	15.5	16.0
11	13.0	12.5	12.5	16.5	16.5	16.5	18.0	17.5	18.0	16.0	15.5	16.0
12	13.0	12.5	13.0	17.5	16.5	17.0	18.5	17.0	18.0	16.0	15.5	16.0
13	13.0	12.5	13.0	17.5	16.5	17.0	19.0	18.0	18.5	16.0	15.5	15.5
14	13.5	13.0	13.0	17.0	16.5	17.0	18.5	18.0	18.0	16.0	15.5	15.5
15	13.0	12.5	13.0	17.0	16.5	17.0	18.5	17.5	18.0	16.5	16.0	16.0
16	13.5	12.5	13.0	17.0	16.0	16.5	19.0	18.0	18.5	16.5	16.0	16.0
17	14.0	13.5	13.5	16.5	16.0	16.5	18.5	18.0	18.5	16.5	16.5	16.5
18	14.5	13.5	14.0	17.5	16.0	17.0	18.0	17.0	17.5	16.5	16.0	16.5
19	14.0	13.5	14.0	17.5	16.5	17.0	17.0	16.0	16.5	16.5	16.0	16.5
20	14.5	13.5	14.0	18.0	17.0	17.5	16.5	16.0	16.5	16.5	16.0	16.0
21	15.0	14.0	14.5	18.0	17.5	17.5	17.0	16.0	16.5	16.0	15.5	16.0
22	14.5	14.5	14.5	18.0	17.0	17.5	18.0	17.0	17.5	15.5	15.5	15.5
23	14.5	14.0	14.5	18.5	16.5	17.5	18.0	17.5	17.5	15.5	15.0	15.5
24	14.5	14.0	14.5	19.0	17.5	18.5	17.5	16.5	17.5	15.0	15.0	15.0
25	14.0	13.5	14.0	19.0	18.0	18.5	18.0	17.5	18.0	15.0	14.5	15.0
26	14.0	13.5	13.5	18.5	17.5	18.0	18.5	17.5	18.0	15.0	15.0	15.0
27	13.5	13.5	13.5	19.0	17.5	18.0	18.5	17.0	17.5	15.0	15.0	15.0
28	14.0	13.5	13.5	19.0	18.0	18.5	17.0	16.0	16.5	15.0	15.0	15.0
29	14.5	13.5	14.0	19.0	18.0	18.5	16.5	16.0	16.0	15.0	14.5	15.0
30	15.0	14.0	14.5	19.0	18.5	19.0	16.5	15.5	16.0	15.0	15.0	15.0
31	---	---	---	19.5	18.5	19.0	15.5	15.0	15.0	---	---	---
MONTH	15.0	10.5	13.0	19.5	14.5	17.0	19.5	15.0	17.5	16.5	14.5	15.5

12401500 KETTLE RIVER NEAR FERRY, WA
(International gaging station)

LOCATION.--Lat 48°58'53", long 118°45'55", in SE¼NW¼ sec.10, T.40 N., R.32 E., Ferry County, Hydrologic Unit 17020002, on right bank 0.5 mi (0.8 km) upstream from Catherine Creek, 1.3 mi (2.1 km) south of international boundary and Ferry, 3.2 mi (5.1 km) upstream from Toroda Creek, and at mile 84.02 (135.2 km).

DRAINAGE AREA.--2,220 mi^2 (5,750 km^2), approximately.

PERIOD OF RECORD.--August 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,836.8 ft (559.86 m) National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Nov. 23, 1928, nonrecording gage at same site and datum.

REMARKS.--Records excellent. Several small diversions above station for irrigation. No regulation.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--52 years, 1,494 ft^3/s (42.31 m^3/s), 1,082,000 acre-ft/yr (1,330 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft^3/s (600 m^3/s) May 29, 1948, gage height, 21.15 ft (6.447 m); minimum, 14 ft^3/s (0.40 m^3/s), discharge measurement, Jan. 23, 1930, but may have been less during period of ice effect Jan. 18-23, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,100 ft^3/s (399 m^3/s) May 7, gage height, 18.49 ft (5.636 m); minimum daily, 55 ft^3/s (1.56 m^3/s) Jan. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	256	100	149	80	319	284	9990	4280	1680	520	298
2	115	236	99	149	83	371	288	10600	4430	1550	495	296
3	114	215	103	142	89	420	291	10800	4600	1420	480	373
4	113	202	113	130	92	425	303	9480	4360	1390	490	480
5	111	209	122	115	96	385	327	9130	4420	1370	505	447
6	111	201	129	55	98	319	366	10700	4560	1400	470	400
7	109	195	136	70	104	307	380	13400	4550	1350	450	358
8	108	188	141	95	110	307	385	9720	4210	1220	455	328
9	106	173	146	100	116	299	410	8520	4170	1130	450	315
10	105	155	124	100	120	295	430	8260	5580	1150	425	311
11	104	149	73	100	121	276	440	7410	5190	1380	405	291
12	102	143	87	105	126	265	470	6930	4590	1960	376	269
13	102	130	112	110	126	258	535	6820	4300	2070	371	319
14	103	109	144	110	112	258	686	6330	4150	1850	366	376
15	107	99	158	114	114	255	972	6310	3870	1920	344	530
16	108	124	86	117	114	238	1290	6510	3930	1790	327	465
17	112	138	97	118	116	234	1620	6040	3710	1640	323	405
18	119	137	125	106	119	234	1990	5730	3540	1470	362	371
19	136	138	152	94	128	244	2480	5390	3110	1360	470	344
20	140	135	163	91	140	248	3560	4800	2810	1290	520	327
21	141	136	169	99	158	251	5340	4720	2550	1220	445	335
22	140	126	173	104	160	262	5890	6670	2340	1150	400	400
23	140	120	143	109	160	284	6200	5640	2350	1060	362	415
24	140	135	153	113	153	288	7480	4730	2270	993	327	405
25	144	137	166	109	150	284	8340	4310	2080	901	303	405
26	165	131	161	104	166	284	8340	4470	2160	803	291	390
27	208	88	158	96	198	291	9160	5290	2130	735	280	366
28	291	62	155	85	251	291	10400	5080	2130	687	276	348
29	352	76	153	80	288	291	12000	4790	2000	638	276	335
30	322	89	151	76	---	288	12200	4730	1830	596	294	331
31	282	---	149	76	---	280	---	4490	---	560	308	---
TOTAL	4564	4432	4141	3221	3888	9051	102858	217790	106200	39733	12166	11033
MEAN	147	148	134	104	134	292	3429	7025	3540	1282	392	368
MAX	352	256	173	149	288	425	12200	13400	5580	2070	520	530
MIN	102	62	73	55	80	234	284	4310	1830	560	276	269
AC-FT	9050	8790	8210	6390	7710	17950	204000	432000	210600	78810	24130	21880

CAL YR 1979 TOTAL 392885 MEAN 1076 MAX 10400 MIN 62 AC-FT 779300
WTR YR 1980 TOTAL 519077 MEAN 1418 MAX 13400 MIN 55 AC-FT 1030000

12404500 KETTLE RIVER NEAR LAURIER, WA
(International gaging station)

LOCATION.--Lat 48°59'04", long 118°12'55", in SW¼NW¼ sec.11, T.40 N., R.36 E., Ferry County, Hydrologic Unit 17020002, on right bank 1,000 ft (305 m) downstream from Deep Creek, 1.1 mi (1.8 km) south of international boundary, 1.1 mi (1.8 km) southeast of Laurier, and at mile 29.71 (47.80 km).

DRAINAGE AREA.--3,800 mi² (9,800 km²), approximately.

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 737: 1930-31. WSP 862: 1937. WSP 882: 1938.

GAGE.--Water-stage recorder. Datum of gage is 1,425.5 ft (434.49 m) National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Jan. 3, 1930, nonrecording gage at same site and datum.

REMARKS.--Records excellent except those for Jan. 6 to Mar. 2, which are fair. Diversions for irrigation of about 720 acres (290 hm²) in the United States (for 1946 from United States reports), and 2,090 acres (850 hm²) in Canada from the Canada Year Book for 1940. Bonneville Power Administration satellite telemeter at station.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--51 years, 2,858 ft³/s (80.94 m³/s), 2,070,000 acre-ft/yr (2,550 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s (991 m³/s) May 29, 1948, gage height, 17.25 ft (5.258 m); minimum, 88 ft³/s (2.49 m³/s) Dec. 1, 1936, gage height, 2.20 ft (0.671 m), but was probably less during winter of 1929-30.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1894 reached a stage of about 22 ft (6.7 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,400 ft³/s (719 m³/s) May 7, gage height, 14.47 ft (4.410 m); minimum daily, 150 ft³/s (4.25 m³/s) Nov. 29, Jan. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	238	548	212	337	170	1000	886	19100	7910	3080	1120	591
2	238	500	250	337	180	1100	893	18800	8130	2870	1060	604
3	238	475	266	337	190	1160	915	20200	8150	2680	1020	628
4	238	460	278	324	200	1160	949	18200	7950	2470	1020	697
5	238	440	286	319	205	1100	1010	17300	7620	2420	1000	774
6	238	430	294	250	210	1000	1100	18700	7710	2360	982	734
7	234	420	302	150	220	924	1190	24200	7760	2310	941	681
8	230	410	306	215	230	900	1220	20300	7480	2170	914	632
9	226	391	310	220	240	899	1270	16500	7120	2050	902	595
10	226	373	319	220	250	879	1380	15800	8390	2030	877	574
11	223	359	240	225	260	861	1440	14700	8930	2320	830	563
12	223	346	180	230	260	846	1500	13600	7950	3140	829	541
13	223	328	200	235	250	824	1670	13600	7420	3780	773	571
14	223	306	240	240	240	822	2070	12800	7090	3480	767	656
15	223	258	280	250	240	801	2780	12400	6730	3380	744	729
16	223	266	310	250	245	772	3420	12700	6410	3280	701	815
17	230	286	210	260	250	758	4010	12200	6330	3040	694	747
18	238	319	240	240	260	760	4950	11600	6040	2790	758	688
19	258	332	346	210	270	745	5770	11100	5550	2590	823	652
20	274	319	368	200	300	748	7390	10000	5060	2410	889	626
21	282	302	386	205	340	746	10800	9180	4630	2250	890	612
22	282	302	400	220	350	764	11900	11300	4270	2090	804	652
23	282	298	400	230	350	804	12300	11200	4080	1950	736	696
24	286	286	355	240	340	860	14100	9350	4050	1820	686	703
25	298	302	364	235	340	873	16400	8340	3770	1720	638	695
26	310	310	368	230	380	876	16200	8210	3740	1620	608	688
27	430	294	359	215	550	892	17000	9030	3770	1510	592	669
28	500	212	350	190	700	895	19000	9250	3620	1420	582	650
29	620	150	341	175	950	904	21200	8650	3560	1330	576	625
30	626	170	337	165	---	905	23500	8590	3300	1240	574	612
31	590	---	332	165	---	889	---	8320	---	1180	579	---
TOTAL	9188	10192	9429	7319	8970	27467	208213	415220	184520	72780	24909	19700
MEAN	296	340	304	236	309	886	6940	13390	6151	2348	804	657
MAX	626	548	400	337	950	1160	23500	24200	8930	3780	1120	815
MIN	223	150	180	150	170	745	886	8210	3300	1180	574	541
AC-FT	18220	20220	18700	14520	17790	54480	413000	823600	366000	144400	49410	39070

CAL YR 1979 TOTAL 706145 MEAN 1935 MAX 17000 MIN 150 AC-FT 1401000
WTR YR 1980 TOTAL 997907 MEAN 2727 MAX 24200 MIN 150 AC-FT 1979000

12404900 KETTLE RIVER NEAR BARSTOW, WA

LOCATION.--Lat 48°47'05", long 118°07'30", in SW¼SW¼ sec.16, T.38 N., R.37 E., Ferry County, Hydrologic Unit 17020002, at county road bridge 0.1 mi (0.2 km) downstream from Toulou Creek, 1.1 mi (1.8 km) east of Barstow and at mile 10.9 (17.5 km).

DRAINAGE AREA.--4,044 mi² (10,474 km²).

PERIOD OF RECORD.--Water years 1960-62, 1963-70 (partial-record station), 1972, 1975 to June 1980 (discontinued).

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is fair.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by the Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1979								
17...	1230	253	250	7.3	11.6	3	6.0	10.0
NOV								
13...	1200	354	150	7.8	2.5	36	2.0	12.7
DEC								
11...	1200	E259	200	7.6	.1	2	5.0	12.9
FEB , 1980								
26...	1440	E410	200	7.9	.2	6	25	12.3
MAR								
11...	1155	928	150	7.8	5.1	8	25	9.9
APR								
08...	1130	1310	155	7.8	6.9	--	20	10.0
MAY								
06...	0915	19400	90	7.9	9.8	12	40	8.3
JUN								
11...	1000	9800	110	7.9	12.2	--	10	9.8

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979							
17...	.06	.040	.05	.000	.00	.000	.00
NOV							
13...	.14	.030	.04	.020	.06	.000	.00
DEC							
11...	.25	.020	.02	.020	.06	.020	.06
FEB , 1980							
26...	.36	.010	.01	.020	.06	.040	.12
MAR							
11...	.09	.000	.00	.010	.03	.010	.03
APR							
08...	.02	.100	.12	.020	.06	.010	.03
MAY							
06...	.06	.100	.12	.050	.15	.030	.09
JUN							
11...	.06	.030	.04	.040	.12	.010	.03

12406500 LOON LAKE NEAR LOON LAKE, WA

LOCATION.--Lat 48°01'42", long 117°36'14" in SW¼NW¼ sec.11, T.29 N., R.41 E., Stevens County, Hydrologic Unit 17020003, at south end of Loon Lake, 2.7 mi (4.3 km) southeast of town of Loon Lake.

DRAINAGE AREA.--14.1 mi² (36.5 km²).

PERIOD OF RECORD.--April 1950 to June 1980, July 1980 to current year (fragmentary). Chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1216: 1950. WSP 1933: Drainage area. WDR WA-80-2: 1979.

GAGE.--Water-stage recorder. Nonrecording gage since June 30, 1980. Datum of gage is 0.00 ft (0.000 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 29, 1951, water-stage recorder at site 0.2 mi (0.3 km) north at same datum.

REMARKS.--Elevation controlled by dam at lake outlet. Some pumping for domestic use and irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,382.71 ft (726.250 m) May 3, 1950, but may have been higher sometime in 1951 water year while water-stage recorder was not operating; minimum observed, 2,378.14 ft (724.857 m) Nov. 8, 1977, but may have been lower during period when water was below the intakes Aug. 1 to Dec. 14, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 2,380.03 ft (725.433 m) June 30, July 1; minimum, 2,378.48 ft (724.961 m) Oct. 18.

REVISIONS.--The maximum elevation for water year 1979 has been revised to 2,380.29 ft (725.512 m) May 12, 1979; the minimum elevation for water year 1979 has been revised to 2,378.64 ft (725.009 m) Sept. 30, 1979; revised daily mean elevations in feet, for February 26, 1979, to September 30, 1979, are given below. These figures supersede those published in the report for 1979.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2379.49	2379.27	2379.23		---	2379.82	2380.10	2380.10	2380.13	2379.82	2379.35	2378.92
2	2379.49	2379.26	2379.24		---	2379.75	2380.10	2380.10	2380.13	2379.84	2379.33	2378.92
3	2379.48	2379.27	2379.23		---	2379.75	2380.10	2380.10	2380.13	2379.83	2379.31	2378.93
4	2379.47	2379.29	2379.25		---	2379.74	2380.10	2380.10	2380.13	2379.82	2379.29	2378.94
5	2379.46	2379.28	2379.24		---	2379.76	2380.10	2380.16	2380.10	2379.81	2379.26	2378.94
6	2379.46	2379.27	2379.24		---	2379.76	2380.10	2380.27	2380.07	2379.80	2379.24	2378.93
7	2379.45	2379.27	2379.23		---	2379.78	2380.03	2380.27	2380.06	2379.79	2379.23	2378.92
8	2379.44	2379.27	2379.23		---	2379.79	2380.03	2380.27	2380.06	2379.78	2379.21	2378.91
9	2379.44	2379.27	2379.24		---	2379.79	2380.03	2380.27	2380.07	2379.76	2379.18	2378.90
10	2379.43	2379.24	2379.24		---	2379.79	2380.04	2380.27	2380.07	2379.74	2379.17	2378.89
11	2379.43	2379.23	---		---	2379.79	2380.04	2380.27	2380.07	2379.72	2379.15	2378.87
12	2379.42	2379.23	---		---	2379.82	2380.04	2380.28	2380.07	2379.70	2379.13	2378.86
13	2379.40	2379.22	---		---	2379.85	2380.06	2380.27	2380.05	2379.69	2379.11	2378.85
14	2379.39	2379.21	---		---	2379.87	2380.06	2380.28	2380.03	2379.67	2379.10	2378.83
15	2379.38	2379.20	---		---	2379.90	2380.06	2380.28	2380.02	2379.66	2379.11	2378.82
16	2379.38	2379.21	---		---	2379.94	2380.06	2380.28	2380.01	2379.64	2379.11	2378.81
17	2379.37	2379.22	---		---	2379.95	2380.08	2380.28	2380.02	2379.62	2379.11	2378.80
18	2379.37	2379.23	---		---	2379.98	2380.08	2380.28	2380.02	2379.61	2379.09	2378.79
19	2379.36	2379.22	---		---	2379.98	2380.08	2380.23	2380.01	2379.59	2379.08	2378.78
20	2379.36	2379.20	---		---	2379.99	2380.08	2380.22	2379.99	2379.59	2379.07	2378.77
21	2379.36	2379.20	---		---	2380.00	2380.09	2380.23	2379.97	2379.57	2379.06	2378.77
22	2379.36	2379.19	---		---	2380.01	2380.09	2380.23	2379.95	2379.55	2379.05	2378.75
23	2379.33	2379.19	---		---	2380.02	2380.09	2380.23	2379.94	2379.52	2379.03	2378.74
24	2379.35	2379.18	---		---	2380.03	2380.09	2380.23	2379.93	2379.50	2379.02	2378.73
25	2379.31	2379.18	---		---	2380.03	2380.09	2380.23	2379.91	2379.48	2379.00	2378.72
26	2379.30	2379.18	---		2379.84	2380.03	2380.09	2380.22	2379.89	2379.46	2378.99	2378.71
27	2379.30	2379.18	---		2379.84	2380.04	2380.09	2380.19	2379.87	2379.45	2378.97	2378.70
28	2379.29	2379.19	---		2379.85	2380.05	2380.09	2380.17	2379.85	2379.43	2378.96	2378.69
29	2379.29	2379.20	---		---	2380.08	2380.10	2380.15	2379.84	2379.42	2378.94	2378.67
30	2379.28	2379.20	---		---	2380.10	2380.10	2380.14	2379.82	2379.39	2378.94	2378.65
31	2379.27	---	---		---	2380.10	---	2380.14	---	2379.37	2378.94	---
MEAN	2379.38	2379.23	---		---	2379.91	2380.06	2380.22	2380.01	2379.63	2379.11	2378.82
MAX	2379.49	2379.29	---		---	2380.10	2380.10	2380.28	2380.13	2379.84	2379.35	2378.94
MIN	2379.27	2379.18	---		---	2379.74	2380.03	2380.10	2379.82	2379.37	2378.94	2378.65

12406500 LOON LAKE NEAR LOON LAKE, WA--Continued

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2378.63	2378.56	2378.51	2378.75	2379.00	2379.28	2379.68	2379.85	---	2380.03	2379.71	2379.33
2	2378.63	2378.56	2378.54	2378.81	2379.00	2379.28	2379.68	2379.85	---	---	---	---
3	2378.62	2378.56	2378.55	2378.77	2379.01	2379.30	2379.68	2379.85	---	---	---	---
4	2378.60	2378.55	2378.57	2378.78	2379.01	2379.33	2379.68	2379.85	---	2379.98	---	---
5	2378.59	2378.55	2378.57	2378.78	2379.01	2379.34	2379.72	2379.85	---	---	2379.63	2379.30
6	2378.58	2378.55	2378.57	2378.79	2379.01	2379.34	2379.75	2379.85	---	---	---	---
7	2378.57	2378.55	2378.57	2378.79	2379.00	2379.34	2379.77	2379.85	---	---	---	---
8	2378.56	2378.55	2378.57	2378.79	2379.00	2379.34	2379.77	2379.85	---	2379.94	2379.59	---
9	2378.55	2378.54	2378.57	2378.79	2379.00	2379.34	2379.81	2379.85	---	---	---	2379.26
10	2378.54	2378.54	2378.59	2378.79	2379.00	2379.34	2379.84	2379.85	---	---	---	---
11	2378.53	2378.53	2378.60	2378.79	2379.00	2379.39	2379.84	2379.85	---	2379.96	---	---
12	2378.53	2378.53	2378.60	2378.86	2379.00	2379.40	2379.84	---	---	---	2379.53	2379.23
13	2378.52	2378.52	2378.60	2378.89	2379.00	2379.44	2379.84	---	---	---	---	---
14	2378.51	2378.52	2378.60	2378.92	2379.01	2379.47	2379.85	---	---	---	---	---
15	2378.50	2378.51	2378.62	2378.97	2379.01	2379.50	2379.84	---	---	2379.93	2379.49	---
16	2378.50	2378.51	2378.63	2379.00	2379.01	2379.50	2379.84	---	---	---	---	2379.31
17	2378.49	2378.51	2378.63	2379.01	2379.01	2379.50	2379.85	---	---	---	---	---
18	2378.49	2378.51	2378.68	2379.00	2379.02	2379.51	2379.84	---	---	2379.90	---	---
19	2378.50	2378.51	2378.70	2379.00	2379.03	2379.55	2379.84	---	---	---	2379.52	2379.28
20	2378.51	2378.51	2378.70	2379.00	2379.04	2379.55	2379.84	---	---	---	---	---
21	2378.51	2378.51	2378.71	2379.00	2379.04	2379.56	2379.84	---	---	---	---	---
22	2378.51	2378.51	2378.72	2379.01	2379.04	2379.56	2379.84	---	---	2379.88	2379.46	---
23	2378.52	2378.51	2378.72	2379.02	2379.05	2379.56	2379.84	---	---	---	---	2379.24
24	2378.53	2378.51	2378.74	2379.02	2379.05	2379.56	2379.84	---	---	---	---	---
25	2378.53	2378.51	2378.75	2379.02	2379.05	2379.56	2379.84	---	---	2379.86	---	---
26	2378.53	2378.52	2378.75	2379.02	2379.10	2379.58	2379.84	---	---	---	2379.40	2379.22
27	2378.54	2378.52	2378.75	2379.02	2379.18	2379.60	2379.84	---	---	---	---	---
28	2378.56	2378.52	2378.75	2379.01	2379.23	2379.64	2379.84	---	---	---	---	---
29	2378.56	2378.52	2378.75	2379.01	2379.25	2379.66	2379.85	---	---	2379.79	2379.36	---
30	2378.56	2378.52	2378.75	2379.01	---	2379.68	2379.85	---	2380.03	---	---	2379.19
31	2378.56	---	2378.75	2379.00	---	2379.68	---	---	---	---	---	---
MEAN	2378.54	2378.53	2378.65	2378.92	2379.04	2379.47	2379.81	---	---	---	---	---
MAX	2378.63	2378.56	2378.75	2379.02	2379.25	2379.68	2379.85	---	---	---	---	---
MIN	2378.49	2378.51	2378.51	2378.75	2379.00	2379.28	2379.68	---	---	---	---	---

NOTE:--Beginning June 30, once-daily readings by observer.

12408500 MILL CREEK NEAR COLVILLE, WA

LOCATION.--Lat 48°34'44", long 117°51'56", in SW¼NW¼ sec.35, T.36 N., R.39 E., Stevens County, Hydrologic Unit 1702003, on right bank 3.0 mi (4.9 km) northeast of Colville, 5.3 mi (8.5 km) downstream from North Fork, and at mile 10.9 (17.5 km).

DRAINAGE AREA.--83.0 mi^2 (215 km^2).

PERIOD OF RECORD.--October 1939 to September 1972 (discontinued). Re-established October 1977 to current year.

REVISED RECORDS.--WSP 1042: 1940, 1942. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude 1,950 ft (594 m) from topographic map. Prior to Mar. 2, 1940; nonrecording gage and Mar. 2, 1940, to Oct. 5, 1959, water-stage recorder at site 0.5 mi (0.8 km) upstream at different datum (used as supplementary gage Nov. 2, 1952 to Oct. 5, 1959). Nov. 2, 1952, to Oct. 5, 1959, nonrecording gage and crest-stage gage at site 300 ft (90 m) upstream at datum 0.47 ft (0.143 m) higher.

REMARKS.--Records good. No regulation. Diversions for irrigation of about 50 acres (20 hm^2) above station.

AVERAGE DISCHARGE.--36 years (water years 1940-72, 1978-80) 46.6 ft^3/s (1.320 m^3/s), 7.62 in/yr (194 mm/yr), 37,760 acre-ft/yr (41.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 694 ft^3/s (19.7 m^3/s) Apr. 24, 1969, gage height, 5.37 ft (1.637 m); maximum gage height, 5.65 ft (1.722 m) May 10, 1961 (backwater from bridge); minimum discharge, 3.2 ft^3/s) (0.091 m^3/s) Jan. 10, 1962, result of freezeup, but may have been less during period of no gage-height record Feb. 1-4, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 316 ft^3/s) (8.95 m^3/s) Apr. 20, gage height, 4.12 ft (1.256 m); minimum daily, 4.5 ft^3/s) (0.13 m^3/s) Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	10	7.9	12	5.5	58	36	208	76	37	16	17
2	5.8	10	8.0	12	6.5	51	37	192	82	36	16	21
3	5.9	11	8.2	13	8.3	47	39	177	77	34	16	18
4	5.9	10	8.9	12	9.9	45	43	160	76	33	15	16
5	5.8	10	9.4	12	9.8	39	46	147	71	32	15	14
6	5.8	10	9.2	8.1	9.6	32	61	162	69	31	14	13
7	5.8	10	9.2	7.0	9.6	34	57	145	68	30	14	13
8	5.8	10	9.2	6.5	9.3	33	55	140	64	29	14	13
9	5.9	9.6	9.7	6.0	9.2	31	62	179	61	27	14	12
10	5.9	9.6	11	6.5	9.1	29	75	179	58	30	13	12
11	5.9	9.6	9.4	7.0	8.8	36	76	153	56	34	13	12
12	5.9	9.9	10	8.5	8.8	37	83	140	55	30	12	12
13	5.9	9.4	9.9	9.1	8.8	35	96	131	61	28	12	14
14	5.9	9.1	11	9.8	8.0	35	118	125	56	28	12	14
15	6.1	9.0	12	9.8	7.5	32	172	124	57	31	11	13
16	6.2	9.3	9.1	11	8.5	29	179	122	54	28	11	13
17	6.5	10	11	11	9.2	31	189	117	53	26	13	12
18	7.3	10	13	9.0	12	30	215	101	51	25	22	12
19	9.2	10	17	8.5	17	30	222	96	48	25	18	13
20	9.5	9.6	18	8.0	24	30	253	91	47	23	15	14
21	9.1	9.6	19	9.5	24	30	288	87	45	21	14	13
22	8.9	9.1	19	9.0	19	34	262	91	46	21	13	12
23	9.5	9.8	16	9.0	17	40	267	85	46	19	13	12
24	10	9.6	15	9.3	15	37	265	81	44	19	12	12
25	11	9.4	14	9.5	15	37	244	82	46	19	12	12
26	11	8.8	13	7.5	17	37	225	87	53	18	12	12
27	12	8.3	12	6.5	40	36	227	82	55	18	12	12
28	12	6.7	12	5.5	75	36	227	78	48	17	16	11
29	12	6.4	12	5.0	75	36	262	77	43	16	15	11
30	11	6.9	12	4.5	---	37	234	78	40	16	14	11
31	10	---	12	5.0	---	37	---	77	---	16	13	---
TOTAL	243.4	280.7	367.1	267.1	496.4	1121	4615	3794	1706	797	432	396
MEAN	7.85	9.36	11.8	8.62	17.1	36.2	154	122	56.9	25.7	13.9	13.2
MAX	12	11	19	13	75	58	288	208	82	37	22	21
MIN	5.8	6.4	7.9	4.5	5.5	29	36	77	40	16	11	11
CFSM	.10	.11	.14	.10	.21	.44	1.86	1.47	.69	.31	.17	.16
IN.	.11	.13	.16	.12	.22	.50	2.07	1.70	.76	.36	.19	.18
AC-FT	483	557	728	530	985	2220	9150	7530	3380	1580	857	785

CAL YR 1979 TOTAL 9656.0 MEAN 26.5 MAX 244 MIN 4.8 CFSM .32 IN 4.33 AC-FT 19150
WTR YR 1980 TOTAL 14515.7 MEAN 39.7 MAX 288 MIN 4.5 CFSM .48 IN 6.51 AC-FT 28790

12409000 COLVILLE RIVER AT KETTLE FALLS, WA

LOCATION.--Lat 48°35'48", long 118°03'41", in NE¼NE¼ sec.30, T.36 N., R.38 E., Stevens County, Hydrologic Unit 17020003, on right bank 600 ft (180 m) downstream from Washington Water Power Co.'s hydroelectric plant at foot of Meyers Falls, 1.0 mi (1.6 km) south of town of Kettle Falls, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--1,007 mi^2 (2,608 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1922 to current year. Published as "at Meyers Falls" 1922-38.

REVISED RECORDS.--WSP 1316: 1930(M), 1941(M), 1948(M). WSP 1636: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,400 ft (427 m), from topographic map. Prior to Oct. 21, 1932, nonrecording gage at site 500 ft (150 m) upstream at different datum. Oct. 21, 1932, to Sept. 19, 1938, nonrecording gages at site 200 ft (60 m) upstream at different datum. Sept. 20, 1938, to Mar. 28, 1949, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Several ditches above station divert water for irrigation. Regulation at low flow by powerplant. Bonneville Power Administration satellite telemeter at station.

AVERAGE DISCHARGE.--58 years, 301 ft^3/s (8.524 m^3/s), 218,100 acre-ft/yr (269 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,440 ft^3/s (97.4 m^3/s) Jan. 21, 1974, gage height, 9.84 ft (2.999 m); maximum gage height, 10.17 ft (3.100 m) Apr. 23, 1956; minimum discharge observed, 0.5 ft^3/s (0.014 m^3/s) Aug. 15, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,030 ft^3/s (29.2 m^3/s) Apr. 21, gage height, 6.98 ft (2.128 m) minimum, 15 ft^3/s (0.42 m^3/s) July 18, Aug. 31, gage height, 4.79 ft (1.460 m) result of regulation by powerplant.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	73	90	131	95	618	350	883	520	221	58	93
2	58	85	57	131	102	611	339	830	526	208	57	112
3	49	83	85	137	110	591	334	777	513	196	58	126
4	52	85	115	149	137	559	334	710	487	189	63	123
5	55	93	107	136	160	500	350	665	468	186	63	110
6	44	85	126	88	172	433	389	643	449	182	63	93
7	67	90	120	61	196	400	438	665	430	172	63	100
8	58	88	118	53	159	383	438	624	422	159	61	88
9	46	83	105	95	159	361	433	630	408	156	60	88
10	50	83	118	95	156	350	481	665	378	159	58	93
11	53	83	115	102	149	350	513	643	361	175	60	73
12	53	83	105	112	153	367	520	598	350	175	61	85
13	55	83	102	115	134	367	526	559	350	162	60	88
14	57	81	126	137	129	383	559	533	367	162	53	115
15	57	71	120	123	107	396	611	539	372	162	49	153
16	61	77	95	149	102	367	680	604	345	159	49	112
17	57	93	93	159	149	345	717	624	334	143	49	107
18	58	97	146	143	159	350	770	598	323	110	83	102
19	63	102	165	120	189	378	822	546	301	129	143	97
20	77	100	179	110	290	372	875	507	288	120	149	107
21	90	95	179	107	378	356	977	474	266	105	93	102
22	83	85	175	118	383	356	1020	455	266	95	88	107
23	81	85	168	126	334	367	1010	487	271	97	81	107
24	81	85	153	120	280	372	1010	481	266	97	79	105
25	93	88	143	123	261	361	994	455	256	88	73	97
26	97	95	140	120	261	350	943	481	276	71	69	95
27	95	85	131	110	320	356	900	500	301	73	65	95
28	95	53	131	95	500	356	883	500	290	77	75	97
29	95	57	140	90	591	356	892	487	261	69	93	95
30	95	42	118	95	---	356	943	481	230	55	95	93
31	88	---	129	90	---	356	---	513	---	55	88	---
TOTAL	2116	2488	3894	3530	6291	12421	20051	18157	10675	4207	2259	3058
MEAN	68.3	82.9	126	114	217	401	668	586	356	136	72.9	102
MAX	97	102	179	159	591	618	1020	883	526	221	149	153
MIN	44	42	57	53	95	345	334	455	230	55	49	73
AC-FT	4200	4930	7720	7020	12480	24640	39770	36010	21170	8340	4480	6070

CAL YR 1979 TOTAL 59829 MEAN 164 MAX 758 MIN 13 AC-FT 118700
WTR YR 1980 TOTAL 89155 MEAN 244 MAX 1020 MIN 42 AC-FT 176800

12409000 COLVILLE RIVER AT KETTLE FALLS, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-72, 1974 to June 1980 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: November 1969 to June 1971.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance furnished by Washington State Department of Ecology.

WATER QUALITY DATA OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)
OCT , 1979							
17...	1150	57	405	7.3	11.0	5	5.0
NOV							
13...	1120	83	275	8.0	2.3	10	3.0
DEC							
11...	1124	118	360	8.1	.3	12	3.0
FEB , 1980							
26...	1355	261	340	8.1	.5	12	75
MAR							
11...	1120	350	400	8.1	4.2	16	55
APR							
08...	1055	455	300	8.0	6.0	--	35
MAY							
06...	0835	637	230	8.2	14.8	15	65
JUN							
11...	0915	367	210	7.9	16.0	--	40

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT , 1979							
17...	9.9	.10	.110	.13	.070	.21	.000
NOV							
13...	13.0	.30	.110	.13	.090	.28	.060
DEC							
11...	13.8	.51	.230	.28	.130	.40	.000
FEB , 1980							
26...	12.9	1.4	.260	.31	.160	.49	.120
MAR							
11...	11.7	1.1	.180	.22	.070	.21	.080
APR							
08...	10.8	.35	.130	.16	.060	.18	.050
MAY							
06...	9.7	.10	.040	.05	.060	.18	.040
JUN							
11...	8.7	.10	.030	.04	.050	.15	.020

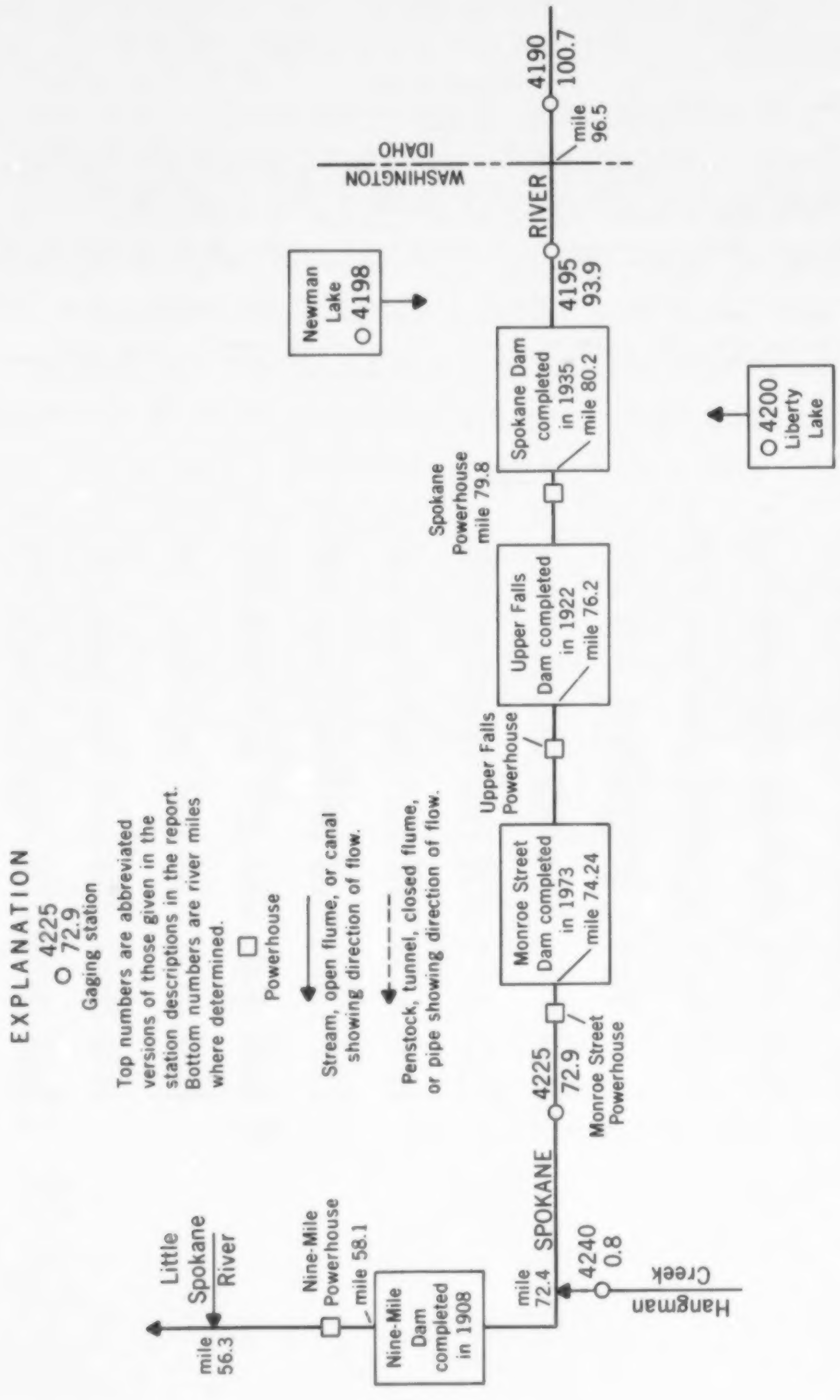
EXPLANATION
4225
72.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Little Spokane River
mile 56.3
Nine-Mile Powerhouse mile 58.1
Nine-Mile Dam completed in 1908
mile 72.4
4240
0.8
Hangman Creek
SPOKANE
4225
72.9
Monroe Street Powerhouse
Monroe Street Dam completed in 1973 mile 74.24
Upper Falls Powerhouse
Upper Falls Dam completed in 1922 mile 76.2
Spokane Powerhouse mile 79.8
Spokane Dam completed in 1935 mile 80.2
Newman Lake 4198
4200 Liberty Lake
4195
93.9
RIVER
WASHINGTON
IDAHO
mile 96.5
4190
100.7

Figure 8. Gaging stations in Spokane River basin above Little Spokane River.

12419000 SPOKANE RIVER NEAR POST FALLS, ID

LOCATION.--Lat 47°42'10", long 116°58'40", in SW¼SW¼ sec.4, T.50 N., R.5 W., Kootenai County, Hydrologic Unit 17010305, on right bank 1 mi (1.6 km) downstream from powerplant of Washington Water Power Co., 1.5 mi (2.4 km) southwest of Post Falls, and at mile 100.7 (162 km).

DRAINAGE AREA.--3,840 mi^2 (9,946 km^2), approximately, of which about 122 mi^2 (316 km^2) in the vicinity of Hayden Lake is noncontributing to this station.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1912 to current year (prior to January 1913 monthly discharge only, published in WSP 870 and 1736). Prior to October 1949, published as "at Post Falls".

GAGE.--Water-stage recorder. Datum of gage is 2,050 ft (624.840 m) referred to originally accepted elevation of 2,157.40 ft (657.575 m) for the Geological Survey bench mark in southeast corner of Idaho First National Bank Building (see WSP 882). National Geodetic Vertical Datum of 1929 is at 2,047.00 ft (623.92 m) gage datum. Jan. 1, 1913, to Nov. 21, 1920, nonrecording gage and Nov. 22, 1920, to Sept. 15, 1934, recording gage 0.6 mi (1.0 km) upstream. From Sept. 16, 1934, to Nov. 15, 1949, recording gage 0.8 mi (1.3 km) upstream. From Nov. 16, 1949, at present site. Datum of all gages prior to Sept. 30, 1964, 50 ft (15.2 m) lower.

REMARKS.--Records good. Rathdrum Prairie Canal (see sta 12418000) diverts water above gage for irrigation. Figures of daily discharge do not include water diverted by this canal. Flow regulated by dam at Post Falls and affected by storage in Coeur d'Alene Lake (see sta 12415500).

AVERAGE DISCHARGE.--River only, 68 years, 6,264 ft^3/s (177 m^3/s), 4,538,000 acre-ft/yr (5,595 hm^3/yr) combined river and diversions above gage, 68 years, 6,351 ft^3/s (180 m^3/s), 4,601,000 acre-ft/yr (5,673 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft^3/s (1,419 m^3/s) when recorder was not operating Dec. 25, 1933 (determined from unpublished records collected by Washington Water Power Co. for station at Liberty Bridge); minimum, 65 ft^3/s (1.84 m^3/s) July 25, 30, 1973; minimum gage height, 4.68 ft (1.426 m) July 20, 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,900 ft^3/s (592 m^3/s) Apr. 25, gage height, 18.20 ft (5.547 m); minimum, 235 ft^3/s (6.66 m^3/s) Dec. 19, gage height, 5.40 ft (1.646 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1340	1800	1630	3100	3470	5460	4640	18100	16000	3650	761	1730
2	1330	1490	1640	3100	3160	6270	4890	18000	15700	3430	761	1750
3	1340	1790	1630	3140	3110	6460	4860	17700	15300	3650	755	1750
4	1330	1790	1640	3170	3090	6550	4840	17500	14600	3780	745	1740
5	1330	1790	1630	3190	3110	6790	4820	17300	11400	3770	752	1730
6	1330	1790	1630	3190	3120	6970	4840	17200	4890	3770	722	1750
7	1340	1790	1640	3180	3120	6860	4860	17000	6250	3500	715	1760
8	1340	1810	1640	3200	3060	7070	4860	16700	6610	2950	707	1730
9	1340	1800	1640	3200	3010	7000	4890	16300	7600	2690	696	1740
10	1340	1790	1650	3210	3010	6890	5120	15900	8380	3060	697	1750
11	1330	1800	1660	3230	2940	6890	5320	15400	8410	3280	719	1750
12	1330	1810	1660	3360	2920	6930	5460	14700	8000	2780	730	1750
13	1340	1720	1670	3430	2880	6940	5660	13900	10600	2510	729	1740
14	1330	1610	1670	2980	2780	6900	5830	13300	11800	2890	969	1740
15	1340	1590	1670	3490	2750	6930	6390	12600	12500	3130	1260	1750
16	1340	1580	1660	4280	2740	6700	7160	12200	13700	2780	1210	1760
17	1340	1590	1910	4310	2630	5540	8000	11300	13700	2270	789	1750
18	1510	1590	2090	4310	2480	5360	8800	10800	13600	1910	1750	1750
19	1780	1590	1710	4290	2700	5890	9680	9290	10500	1920	1830	1750
20	1780	1600	1590	4320	2990	5960	10500	3120	8130	1590	1340	1740
21	1780	1600	2150	4310	3280	5950	11900	3480	7600	1350	1450	1750
22	1780	1600	2220	4310	3330	6060	12900	4010	8490	1340	1870	1750
23	1780	1610	2220	4300	3800	6080	14600	4720	8380	1700	1990	1760
24	1780	1620	2630	4290	4030	5960	15700	4180	6050	1900	1610	1750
25	1780	1620	3050	4270	4070	5740	16000	4070	5100	1630	754	1760
26	1780	1620	3070	4220	4090	5580	16800	10500	5120	1460	1210	1780
27	1790	1610	3060	4090	4190	5540	17000	15800	5830	1470	1730	1760
28	1790	1620	3060	3760	4420	5470	17200	16700	5590	1460	1720	1760
29	1800	1620	3060	3620	4890	5410	17700	16800	5110	1470	1730	1760
30	1790	1630	3070	3590	---	5150	18000	16500	4290	1330	1730	1770
31	1780	---	3100	3540	---	4710	---	16400	---	951	1730	---
TOTAL	47410	50270	64350	113980	95170	192010	279220	401470	279230	75371	36161	52510
MEAN	1529	1676	2076	3677	3282	6194	9307	12950	9308	2431	1166	1750
MAX	1800	1810	3100	4320	4890	7070	18000	18100	16000	3780	1990	1780
MIN	1330	1490	1590	2980	2480	4710	4640	3120	4290	951	696	1730
AC-FT	94040	99710	127600	226100	188800	380900	553800	796300	553900	149500	71730	104200

CAL YR 1979 TOTAL 1858249 MEAN 5091 MAX 30100 MIN 258 AC-FT 3686000
WTR YR 1980 TOTAL 1687152 MEAN 4610 MAX 18100 MIN 696 AC-FT 3346000

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected 0.2 mi (0.3 km) upstream from gage.

PERIOD OF RECORD.--Water years 1973 to June 1980 (discontinued).

WATER QUALITY DATA OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)
OCT , 1979												
17...	1200	1340	58	6.7	16.0	15.0	--	8.8	94	13	--	K5
NOV												
15...	1300	1600	58	7.4	6.0	7.5	--	10.4	95	18	--	K5
DEC												
13...	1100	1640	62	7.3	7.0	4.0	--	11.8	98	18	--	K1
JAN , 1980												
16...	1300	4290	63	6.9	3.0	4.0	--	12.3	99	18	--	<1
MAR												
20...	0915	5820	61	6.2	5.0	3.5	1.0	12.9	94	15	1.4	K3
APR												
24...	0800	15300	67	6.7	11.5	7.0	2.2	13.0	116	5	.8	<1
MAY												
28...	1030	17800	55	7.3	10.5	12.0	3.6	11.4	115	16	1.1	K4
JUN												
09...	1300	8440	53	7.0	23.0	15.0	1.5	10.2	108	6	--	K1
JUL												
16...	1200	2670	54	7.1	24.0	20.0	1.2	8.7	102	11	.9	K5
AUG												
20...	1000	1340	56	6.7	19.5	20.0	1.5	7.6	89	6	1.1	K8
28...	0930	1660	62	7.2	12.5	18.0	1.0	7.9	77	21	--	K11
SEP												
18...	0930	1760	61	7.1	14.5	17.5	.50	8.2	95	30	.7	--

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
OCT , 1979											
17...	--	4	.03	.010	.01	.52	.010	.03	--	--	1
NOV											
15...	--	0	.19	.020	.02	.26	.010	.03	--	--	1
DEC											
13...	--	0	.04	.030	.04	1.40	.010	.03	--	--	1
JAN , 1980											
16...	--	3	.09	.010	.01	.32	.010	.03	--	--	1
MAR											
20...	53	0	.06	.000	.00	.33	.020	.06	--	.030	0
APR											
24...	K2	0	.02	.000	.00	.87	.020	.06	--	.010	2
MAY											
28...	56	0	.00	.000	.00	.31	.050	.15	.030	.020	1
JUN											
09...	55	5	.02	.070	.08	.29	.010	.03	--	.010	1
JUL											
16...	K1200	9	.00	.000	.00	.48	.050	.15	--	.000	1
AUG											
20...	1000	6	.09	.000	.00	.67	.030	.09	--	.000	1
28...	1200	75	.00	.000	.00	.51	.020	.06	--	.000	1
SEP											
18...	570	5	.00	.000	.00	.36	.040	.12	--	.010	1

K Results based on colony count outside the acceptable range (non-ideal colony count).

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER QUALITY DATA OCTOBER 1979 TO JUNE 1980

DATE	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1979											
17...	1	3	1	--	--	50	1	.1	70	--	--
NOV											
15...	1	0	4	0	10	110	6	.0	140	--	--
DEC											
13...	2	2	2	--	--	50	6	.0	160	--	--
JAN , 1980											
16...	1	--	1	--	--	40	10	.1	160	--	--
MAR											
20...	1	8	6	3	3	110	15	.0	180	10	170
APR											
24...	2	3	4	2	2	280	10	.2	260	--	--
MAY											
28...	1	0	13	10	<10	140	5	<1.0	200	140	64
JUN											
09...	1	2	13	10	<10	100	11	<1.0	130	40	90
JUL											
16...	1	4	<10	1	<10	100	7	<1.0	130	130	<5
AUG											
20...	1	0	32	30	2	120	10	.1	170	90	80
28...	1	11	8	--	--	70	6	.1	120	40	80
SEP											
18...	1	5	12	10	12	160	5	.0	180	--	--

DATE	TIME	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM+ POTAS-SIUM DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE FET-FLD (MG/L AS HCO3)
NOV , 1979							
15...	1300	6.0	1.6	1.6	2.3	.7	--
MAR , 1980							
20...	0915	7.0	1.7	1.7	--	.8	--
APR							
24...	0800	--	--	--	--	--	24
MAY							
28...	1030	5.4	1.6	1.3	--	.6	--
JUN							
09...	1300	7.0	1.6	1.5	--	.7	22
JUL							
16...	1200	--	--	--	--	--	24
AUG							
20...	1000	--	--	--	--	--	24
28...	0930	--	--	--	--	--	--
SEP							
18...	0930	6.7	1.8	1.6	--	1.0	22

DATE	CAR-BONATE FET-FLD (MG/L AS CO3)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV , 1979							
15...	--	--	14	.5	.1	5.4	50
MAR , 1980							
20...	--	17	11	.4	.1	7.2	--
APR							
24...	0	20	--	--	--	--	--
MAY							
28...	--	16	6.9	.3	.1	6.9	41
JUN							
09...	--	18	8.0	.3	.1	7.1	--
JUL							
16...	--	20	--	--	--	--	--
AUG							
20...	--	20	--	--	--	--	--
28...	--	--	--	--	--	--	49
SEP							
18...	0	19	6.9	.8	.1	6.8	49

DATE	TIME	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, SUS-PENDED RECOV. (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ANTI-MONY, TOTAL (UG/L AS SB)	ANTI-MONY, SUS-PENDED TOTAL (UG/L AS SB)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)
MAY , 1980											
28...	1030	160	100	<100	0	0	0	1	0	1	<100

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER QUALITY DATA OCTOBER 1979 TO JUNE 1980

DATE	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	BORON, SUS-PENDED RECOV-ERABLE (UG/L AS B)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)
MAY , 1980											
28...	0	10	<100	6	<100	1	0	1	0	0	0

DATE	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)
MAY , 1980											
28...	<5	<5	13	10	<10	140	120	20	5	5	<10

DATE	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI)
MAY , 1980										
28...	<10	<10	<50	20	4	<1.0	.1	.0	<10	0

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAY , 1980										
28...	<10	0	0	0	0	0	0	200	140	64

RADIOCHEMICAL ANALYSES

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)
NOV , 1979									
15...	1300	<.4	<.4	--	--	1.0	.6	.9	.6
DEC									
13...	1100	<.5	<.4	--	--	--	--	.9	<.4
MAR , 1980									
20...	0915	<.5	<.4	<.3	<.3	.8	<.4	.8	<.4
APR									
24...	0800	<.4	<.4	<.3	<.3	1.0	<.4	1.0	<.4
MAY									
28...	1030	<.6	.5	<.4	.3	.9	.6	.9	.5
JUN									
09...	1300	1.0	<.4	.7	<.3	.9	<.4	.9	<.4
JUL									
16...	1200	<.6	<.4	<.4	<.3	.9	<.4	.9	<.4
AUG									
20...	1000	<.6	<.4	<.4	<.3	.8	<.4	.8	<.4
28...	0930	<.6	<.4	<.4	<.3	.8	<.4	.8	<.4
SEP									
18...	0930	<.4	<.4	<.3	<.3	1.1	<.4	1.1	<.4

12419500 SPOKANE RIVER ABOVE LIBERTY BRIDGE, NEAR OTIS ORCHARDS, WA

LOCATION.--Lat 47°40'56", long 117°05'05", in NW¼ sec.11, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on left bank 1.2 mi (1.9 km) upstream from Liberty Bridge, 1.8 mi (2.9 km) southeast of Otis Orchards, 3.3 mi (5.3 km) northeast of Greenacres, and at mile 93.9 (151.1 km).

DRAINAGE AREA.--3,080 mi^2 (10,050 km^2), approximately.

PERIOD OF RECORD.--January 1929 to December 1936, March 1937, August 1937 to August 1941, October 1941 to October 1942, February to May 1943, August 1943 to November 1946, February to July 1947, September 1947 to February 1948; May to November 1948, March to November 1949, and April to September 1950 (monthly discharge only); October 1950 to current year. Chemical analyses July 1959 to September 1971, water temperatures December 1963 to September 1965.

GAGE.--Water-stage recorder. Datum of gage is 2,000 ft (609.6 m) National Geodetic Vertical Datum of 1929 (levels by Washington Water Power Co.).

REMARKS.--Records excellent. Flow partly regulated by dam at Post Falls, Idaho, 8.2 mi (13.2 km) upstream and affected by storage in Coeur d'Alene Lake. Rathdrum Prairie Canal, 12.7 mi (20.4 km) upstream, diverts water for irrigation of about 3,000 acres (12 km^2) above station.

AVERAGE DISCHARGE.--44 years (water years 1930-36, 1938-40, 1942, 1944-46, 1951-80), 6,104 ft^3/s (172.9 m^3/s), 4,422,000 acre-ft/yr (5,450 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft^3/s (1,420 m^3/s) Dec. 25, 1933, gage height, 22.24 ft (6.779 m); minimum daily discharge, 38 ft^3/s (1.08 m^3/s) July 20, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,300 ft^3/s (575 m^3/s) Apr. 25, gage height, 16.77 ft (5.111 m); minimum, 360 ft^3/s (10.2 m^3/s) Nov. 2, gage height, 8.38 ft (2.554 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1220	1760	1560	2990	3190	5250	4550	18500	16000	3630	645	1670
2	1220	1430	1580	3000	3100	5970	4850	18300	15600	3370	645	1680
3	1220	1760	1580	3030	3030	6220	4810	18000	15200	3560	645	1680
4	1220	1760	1580	3070	3030	6300	4790	17800	14500	3710	638	1670
5	1220	1740	1560	3090	3070	6550	4770	17500	11800	3700	645	1670
6	1210	1760	1580	3090	3090	6750	4790	17400	4850	3700	617	1670
7	1220	1760	1580	3090	3090	6620	4810	17200	6020	3480	610	1700
8	1220	1770	1580	3140	3020	6850	4810	16800	6520	2960	610	1670
9	1230	1770	1580	3190	2970	6800	4850	16400	7250	2660	597	1670
10	1220	1760	1580	3270	2970	6700	5050	15900	8120	2990	597	1680
11	1220	1770	1580	3290	2920	6680	5230	15400	8150	3260	610	1680
12	1220	1780	1590	3320	2890	6720	5350	14600	7770	2780	624	1680
13	1220	1700	1610	3340	2850	6750	5530	13800	10300	2500	624	1680
14	1220	1550	1600	2760	2730	6700	5670	13200	11600	2820	808	1670
15	1230	1530	1600	3560	2680	6720	6200	12500	12300	3070	1130	1680
16	1230	1530	1580	4150	2520	6550	6970	12200	13400	2790	1160	1700
17	1230	1540	1790	4170	2500	5450	7750	11300	13500	2290	673	1680
18	1380	1530	2020	4190	2470	5150	8520	10700	13400	1860	1560	1680
19	1730	1530	1680	4170	2660	5700	9450	9360	10500	1860	1840	1680
20	1730	1540	1460	4190	2870	5780	10400	3240	7870	1560	1220	1680
21	1730	1540	2090	4190	3220	5780	11800	3530	7420	1240	1300	1680
22	1730	1540	2170	4190	3270	5880	12800	3970	8150	1230	1780	1700
23	1730	1550	2160	4170	3660	5920	14400	4710	8200	1560	1920	1700
24	1730	1550	2570	4170	3910	5800	15700	4270	6020	1830	1660	1700
25	1730	1550	2930	4150	3970	5610	16000	4010	5010	1590	638	1700
26	1730	1550	2960	4130	3990	5450	16900	10400	5030	1350	1000	1720
27	1740	1540	2960	3830	4090	5430	17100	15800	5630	1370	1670	1710
28	1740	1550	2940	3410	4310	5350	17400	16800	5530	1350	1660	1700
29	1760	1550	2940	3490	4750	5310	17900	16900	5030	1370	1660	1710
30	1740	1560	2960	3460	---	5070	18300	16600	4290	1240	1660	1710
31	1730	---	3000	3290	---	4690	---	16400	---	894	1660	---
TOTAL	44700	48750	61950	110580	92820	186500	277450	403490	274960	73574	33106	50600
MEAN	1442	1625	1998	3567	3201	6016	9248	13020	9165	2373	1068	1687
MAX	1760	1780	3000	4190	4750	6850	18300	18500	16000	3710	1920	1720
MIN	1210	1430	1460	2760	2470	4690	4550	3240	4290	894	597	1670
AC-FT	88660	96700	122900	219300	184100	369900	550300	800300	545400	145900	65670	100400

CAL YR 1979 TOTAL 1849666 MEAN 5068 MAX 30000 MIN 296 AC-FT 3669000
WTR YR 1980 TOTAL 1658480 MEAN 4531 MAX 18500 MIN 597 AC-FT 3290000

12419800 NEWMAN LAKE NEAR NEWMAN LAKE, WA

LOCATION.--Lat 47°45'52", long 117°05'47", in NE¼SE¼ sec.10, T.26 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on southwest shore 3.0 mi (4.8 km) northwest of town of Newman Lake.

DRAINAGE AREA.--28.6 mi^2 (74.1 km^2).

PERIOD OF RECORD.--September 1958 to March 1968 (fragmentary); April 1968 to January 1970; February 1970 to September 1980 (fragmentary) (discontinued). Chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Altitude of gage is 2,120 ft (646 m), from topographic map. Apr. 4, 1968 to Jan. 27, 1970, water-stage recorder at site 0.7 mi (1.1 km) northeast across lake at same datum.

REMARKS.--Lake elevation regulated by concrete headworks at outlet. Many small diversions for domestic use by pumping from lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 11.62 ft (3.542 m) Jan. 29, 1974; minimum observed, 7.08 ft (2.158 m) Oct. 25, Nov. 2, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 10.31 ft (3.142 m) June 2; minimum observed, 7.98 ft (2.432 m) Dec. 7, 8.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	8.20	---		---	---	9.38	9.80	---	---	---	---
2	---	---	---		---	---	---	---	10.31	---	---	9.30
3	---	---	---		---	---	---	9.81	---	10.00	---	---
4	---	---	---		---	---	---	9.80	---	---	9.56	---
5	---	---	---		---	---	9.38	---	10.29	---	---	---
6	---	---	---		---	---	---	---	---	---	9.52	9.26
7	---	8.10	7.98		---	9.00	9.40	9.80	10.25	10.01	---	---
8	---	---	7.98		8.26	---	---	---	---	---	---	---
9	---	---	---		---	---	---	---	10.21	---	9.48	---
10	8.37	8.08	---		---	---	---	---	---	---	---	9.25
11	---	---	---		---	9.02	---	9.80	---	---	9.45	---
12	---	---	---		---	---	9.63	---	---	---	---	9.24
13	8.30	---	---		---	---	---	---	---	---	---	9.26
14	---	---	---		---	---	---	9.80	10.24	---	9.41	---
15	---	---	8.00		---	9.12	---	---	---	---	---	9.25
16	8.29	---	---		---	---	---	---	10.20	---	9.38	---
17	---	8.04	---		---	---	9.76	9.88	---	---	---	9.25
18	---	---	---		---	---	---	---	10.16	---	9.44	---
19	8.30	---	---		---	9.20	9.79	---	---	---	---	9.25
20	---	---	---		---	---	---	9.88	---	---	9.39	---
21	---	---	---		---	---	9.80	9.86	10.09	9.84	---	---
22	---	---	---		---	9.22	---	---	---	---	---	9.20
23	---	---	---		---	---	---	9.85	10.05	9.81	9.37	---
24	---	---	---		---	---	---	---	---	---	---	---
25	---	---	---		---	9.22	---	---	---	9.78	9.35	---
26	---	---	---		---	---	9.78	9.87	---	---	---	9.17
27	8.26	---	---		---	---	---	---	---	9.75	9.32	---
28	---	---	---		---	---	---	---	10.04	---	---	---
29	---	---	8.10		---	9.32	---	10.08	---	9.70	---	9.18
30	---	---	---		---	---	---	---	10.02	---	---	---
31	---	---	---		---	---	---	10.22	---	9.67	---	---
MEAN	---	---	---		---	---	---	---	---	---	---	---
MAX	---	---	---		---	---	---	---	---	---	---	---
MIN	---	---	---		---	---	---	---	---	---	---	---

12420000 LIBERTY LAKE AT LIBERTY LAKE, WA

LOCATION.--Lat 47°39'09", long 117°05'20", in NE¼ sec.22, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on right wall of concrete outlet flume at town of Liberty Lake, 15 mi (24.1 km) east of Spokane.

DRAINAGE AREA.--13.3 mi^2 (34.4 km^2).

PERIOD OF RECORD.--December 1950 to December 1955 (fragmentary), January 1956 to July 1966, August 1966 to current year (fragmentary). Chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1958, published at datum 2,046.48 ft (623.767 m) higher.

REMARKS.--Stage controlled by gates at outlet. Observer readings of Dec. 23 through Mar. 2 were taken to top of ice. Some pumping from lake for domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,051.81 ft (625.392 m), from high-water mark, occurred during period Jan. 19 to Feb. 5, 1974; minimum observed, 2,045.56 ft (623.487 m) Nov. 11, 15, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 2,048.83 ft (624.483 m), June 10, 16; minimum observed 2,046.60 ft (623.804 m) Nov. 16.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	2048.74	2048.12	2047.50
2	2047.00	---	---	---	*2047.22	*2047.60	---	2048.50	2048.80	---	---	---
3	---	---	---	---	---	---	2048.06	---	---	---	---	---
4	---	2046.70	2046.66	---	*2047.25	---	---	2048.60	---	---	---	2047.44
5	---	---	---	---	---	---	---	---	---	2048.70	2048.00	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	2046.70	*2046.90	---	2047.70	---	---	2048.80	2048.68	---	---
8	---	---	---	---	---	---	2048.09	---	---	---	---	---
9	2046.90	---	---	---	*2047.30	---	---	2048.58	---	---	2047.90	2047.40
10	---	---	---	---	---	2047.74	---	---	2048.83	---	---	---
11	---	2046.62	---	---	*2047.34	---	---	---	---	---	2047.82	---
12	---	---	---	*2046.96	---	---	2048.20	2048.58	---	2048.60	---	2047.36
13	2046.96	---	---	---	---	---	2048.24	---	---	---	---	---
14	---	---	---	---	---	2047.80	---	---	---	2048.52	---	---
15	---	---	---	---	---	---	---	---	---	---	---	2047.30
16	---	2046.60	---	---	*2047.40	---	---	---	2048.83	---	2047.76	---
17	---	---	---	---	---	---	2048.30	2048.60	---	---	---	---
18	---	---	---	---	---	---	---	---	---	2048.44	2047.70	---
19	2046.82	---	---	*2047.20	---	2047.94	---	---	---	---	---	---
20	---	---	---	---	---	---	2048.34	---	---	---	---	2047.25
21	---	2046.62	---	---	*2047.36	---	---	---	---	2048.38	---	---
22	---	---	---	---	---	---	---	---	---	---	2047.64	---
23	---	---	*2046.80	---	*2047.44	---	---	2048.64	2048.80	2048.40	---	---
24	2046.80	---	---	---	---	---	---	---	---	---	---	2047.12
25	---	---	---	---	---	2047.98	2048.40	2048.65	---	2048.30	2047.60	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	2046.64	---	---	*2047.50	---	---	---	---	---	---	---
28	---	---	*2046.82	---	---	---	2048.44	---	2048.80	2048.20	---	---
29	---	---	---	---	*2047.56	2048.00	---	---	---	---	2047.55	2047.08
30	---	---	*2046.84	---	---	---	---	2048.70	---	---	---	---
31	2046.75	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

* Readings were taken to top of ice.

12422500 SPOKANE RIVER AT SPOKANE, WA

LOCATION.--Lat 47°39'34", long 117°26'53", in SW¼SW¼ sec.13, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010305, on right bank at Cochran Street in Spokane, 0.5 mi (0.8 km) upstream from Hangman Creek, and at mile 72.9 (117.3 km).

DRAINAGE AREA.--4,290 mi^2 (11,100 km^2), approximately.

PERIOD OF RECORD.--April 1891 to current year. Chemical analyses October 1972 to September 1973.

REVISED RECORDS.--WSP 532: 1891-1904. WSP 1246: Drainage area. WSP 1286: 1907-9.

GAGE.--Water-stage recorder. Datum of gage is 1,696.6 ft (517.12 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to July 1, 1921, water-stage recorders and nonrecording gages at several sites within 4 mi (6 km) of present site at various datums.

REMARKS.--Records excellent. Flow partly regulated by powerplants of Washington Water Power Co. at Post Falls, Idaho, 28.8 mi (46.3 km) upstream and at Spokane, 1.3 mi (2.1 km) upstream, and by Coeur d'Alene Lake, Idaho. Rathdrum Prairie Canal diverts water above station for irrigation. In 1946, approximately 22,600 acres (91 km^2), of which about 15,000 acres (61 km^2) utilized surface water, were under irrigation upstream from Spokane. Since 1966 irrigation has been from many wells in the valley near the river with only about 3,000 acres (12 km^2) irrigated from the river.

AVERAGE DISCHARGE.--89 years, 6,848 ft^3/s (193.9 m^3/s) 4,961,000 acre-ft/yr (6,120 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,000 ft^3/s (1,390 m^3/s), estimated, May 31, 1894 (see WSP 532); minimum, 95 ft^3/s (2.69 m^3/s) Sept. 19, 1956, gage height, 15.60 ft (4.755 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,500 ft^3/s (552 m^3/s) Apr. 30, gage height, 24.25 ft (7.391 m); minimum, 497 ft^3/s (14.1 m^3/s) Aug. 25, gage height, 16.62 ft (5.066 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1550	2090	1990	3200	3490	5190	4760	18500	16300	4220	1200	1920
2	1580	1900	2000	3160	3460	5850	5090	18500	15900	3870	1200	2000
3	1590	2110	1990	3210	3370	6230	5050	18200	15600	3940	1240	1930
4	1590	2100	1980	3250	3330	6240	5050	17900	14900	4100	1210	1990
5	1590	2110	1970	3280	3340	6490	5050	17700	13300	4060	1190	1890
6	1560	2110	1960	3300	3370	6660	5030	17500	5870	4070	1170	1970
7	1610	2130	1990	3270	3360	6580	5070	17400	6300	3920	1150	2000
8	1570	2110	1990	3320	3340	6830	5070	17200	7080	3490	1110	1930
9	1570	2110	1990	3390	3260	6780	5090	16800	7350	3040	1110	1950
10	1600	2130	1980	3410	3240	6730	5200	16300	8360	3240	1110	1910
11	1610	2080	1970	3460	3250	6710	5400	15900	8400	3660	1080	2000
12	1590	2140	1980	3540	3160	6750	5590	15100	8060	3230	1120	1980
13	1620	2140	2000	3540	3160	6780	5690	14400	9980	2900	1090	1960
14	1590	1940	2010	3420	3090	6780	5830	13700	11700	3050	1140	1980
15	1610	1980	2030	3220	2990	6780	6240	13100	12300	3370	1430	1970
16	1610	1980	2020	4190	2880	6740	6860	12600	13600	3200	1520	1980
17	1650	1940	2040	4250	2850	5900	7600	11800	13700	2830	1220	1920
18	1640	1940	2380	4260	2840	5470	8330	11300	13700	2330	1570	1970
19	2010	1970	2250	4270	3000	5930	9090	9960	11500	2340	2110	1950
20	2010	1950	1760	4290	3010	6000	9980	4950	8260	2220	1600	1980
21	2020	1950	2320	4320	3420	5980	11300	4260	7900	1870	1580	1970
22	2020	1970	2440	4310	3530	6020	12500	4510	8210	1770	1910	2020
23	2040	1980	2450	4300	3700	6140	14100	5060	8650	1920	2100	2010
24	2060	1970	2600	4320	4030	6050	15500	4960	6760	2240	2090	1970
25	2060	2000	3050	4340	4120	5900	15900	4390	5570	2120	1210	1960
26	2040	1960	3090	4300	4120	5730	16800	8960	5470	1820	1220	2060
27	2070	1960	3100	4250	4190	5680	17100	15400	5940	1840	1910	1970
28	2080	1950	3110	3670	4380	5590	17400	16700	6040	1810	1880	1990
29	2080	2000	3100	3740	4750	5540	17900	16900	5430	1810	1920	2060
30	2090	1960	3140	3780	---	5400	18300	16700	4940	1750	1930	1990
31	2090	---	3190	3620	---	5090	---	16600	---	1560	1920	---
TOTAL	55400	60660	71870	116180	100030	190540	277870	413250	287070	87590	45240	59180
MEAN	1787	2022	2318	3748	3449	6146	9262	13330	9569	2825	1459	1973
MAX	2090	2140	3190	4340	4750	6830	18300	18500	16300	4220	2110	2060
MIN	1550	1900	1760	3160	2840	5090	4760	4260	4940	1560	1080	1890
AC-FT	109900	120300	142600	230400	198400	377900	551200	819700	569400	173700	89730	117400

CAL YR 1979 TOTAL 1972213 MEAN 5403 MAX 30700 MIN 752 AC-FT 3912000
WTR YR 1980 TOTAL 1764880 MEAN 4822 MAX 18500 MIN 1080 AC-FT 3501000

12424000 HANGMAN CREEK AT SPOKANE, WA

LOCATION.--Lat 47°39'10", long 117°26'55", in NW¼ sec.24, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010306, on left bank 0.3 mi (0.5 km) downstream from bridge on Interstate 90 in Spokane and at mile 0.8 (1.3 km).

DRAINAGE AREA.--689 mi² (1,785 km²).

PERIOD OF RECORD.--April 1948 to September 1977. October 1977 to September 1978 (discharges above 20 ft³/s (0.57 m³/s) only) October 1978 to current year. Prior to October 1950, published as Latah Creek at Spokane.

REVISED RECORDS.--WSP 1933: Drainage area. WSP 2133: 1965(P).

GAGE.--Water-stage recorder. Datum of gage is 1,717.43 ft (523.473 m), National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Nov. 22, 1948, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum.

REMARKS.--Records fair. No regulation. Some diversions for irrigation above station. National Weather Service telemeter at station.

AVERAGE DISCHARGE.--31 years, (water years 1949-77, 1979-80), 246 ft³/s (6.966 m³/s), 4.85 in/yr (123 mm/yr), 178,200 acre-ft/yr (220 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s (583 m³/s) Feb. 3, 1963, gage height, 13.35 ft (4.069 m); minimum, 1.4 ft³/s (0.040 m³/s) Sept. 6, 7, 9, 10, 14-17, 1973, gage height, 1.47 ft (0.448 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 15	0215	*2,740	77.6	*6.20	1.890
June 15	1015	2,500	70.8	5.99	1.826

Minimum discharge, 6.2 ft³/s (0.18 m³/s) Aug. 27, 28, Sept. 1; minimum gage height, 1.49 ft (0.454 m) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	14	14	30	35	460	250	84	290	51	8.4	7.3
2	7.1	14	19	30	36	356	201	80	247	45	8.1	7.2
3	7.1	14	22	25	500	305	172	73	204	41	8.0	7.6
4	7.1	15	26	20	600	336	158	62	180	36	7.8	8.1
5	7.8	15	40	17	270	278	150	59	150	34	8.0	8.0
6	7.8	14	60	12	210	207	153	57	120	33	8.0	8.1
7	7.8	14	66	11	106	192	164	52	111	30	7.7	7.7
8	7.8	14	65	11	250	174	153	50	103	27	7.6	7.4
9	8.2	14	36	10	176	164	140	64	93	25	7.6	7.0
10	8.5	14	31	15	174	160	160	64	75	25	7.5	7.0
11	8.5	14	29	35	150	348	203	64	64	25	7.5	7.1
12	8.5	14	22	88	113	500	165	64	56	24	7.4	6.7
13	8.5	14	25	75	86	320	142	64	50	22	7.3	9.3
14	8.9	13	25	445	65	445	140	54	386	20	7.0	7.8
15	9.2	13	20	1840	88	837	135	60	930	21	7.2	8.2
16	9.2	14	26	720	73	418	130	60	722	21	8.4	8.5
17	8.9	16	25	668	80	297	125	56	334	18	8.3	8.5
18	10	18	26	485	608	336	116	73	295	17	6.6	8.5
19	13	18	29	240	1040	300	104	67	201	15	7.9	8.2
20	13	18	37	140	1010	240	98	53	156	15	9.0	8.2
21	15	16	46	125	600	217	90	46	120	14	8.5	8.2
22	14	16	41	115	475	220	90	43	114	13	7.9	8.5
23	14	18	36	105	322	186	86	42	206	13	7.7	8.2
24	14	24	34	100	250	161	82	40	170	12	7.7	7.8
25	17	22	32	95	220	158	75	42	119	11	7.4	7.1
26	16	20	31	68	230	145	67	704	95	11	7.1	7.1
27	15	17	29	45	690	150	62	1360	85	10	6.4	7.5
28	14	14	28	35	490	198	56	746	117	9.6	6.6	7.5
29	15	13	27	32	716	198	57	490	77	9.6	7.2	7.5
30	14	12	27	30	---	220	62	348	62	8.8	6.9	6.8
31	14	---	25	33	---	260	---	485	---	8.1	6.6	---
TOTAL	334.0	466	994	5692	9640	8811	3815	5584	5965	665.1	235.4	232.6
MEAN	10.8	15.5	32.1	184	332	284	127	180	199	21.5	7.59	7.75
MAX	17	24	66	1840	1040	837	250	1360	930	51	9.0	9.3
MIN	7.1	12	14	10	35	145	56	40	50	8.1	6.4	6.7
AC-FT	662	924	1970	11290	19120	17480	7570	11080	11830	1320	467	461

CAL YR 1979 TOTAL 84300.7 MEAN 231 MAX 8550 MIN 6.8 AC-FT 167000
WTR YR 1980 TOTAL 42432.1 MEAN 116 MAX 1840 MIN 6.4 AC-FT 84160

12424003 HANGMAN CREEK AT MOUTH AT SPOKANE, WA

LOCATION.--Lat 47°39'17", long 117°27'12", on west line of NW¼ sec.24, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010306, at bridge on Riverside Avenue at west edge of Spokane and 0.6 mi (1.0 km) upstream from mouth.

DRAINAGE AREA.--690 mi² (1,790 km²), approximately.

PERIOD OF RECORD.--Water years 1973, 1977 to current year (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)
OCT , 1979							
17...	1500	8.8	366	7.9	13.7	25	15
NOV							
14...	1000	13	270	7.8	2.1	7	8.0
DEC							
12...	0900	20	276	8.3	4.6	16	40
FEB , 1980							
26...	0800	26	290	8.1	3.2	15	150
MAR							
12...	1100	485	160	7.9	4.4	32	85
APR							
08...	1515	150	180	7.9	7.4	--	110
MAY							
07...	0900	52	230	8.2	15.2	14	70

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)
OCT , 1979						
17...	10.0	.09	.050	.06	.010	.03
NOV						
14...	12.8	1.0	.060	.07	.060	.18
DEC						
12...	12.1	.02	.060	.07	.090	.28
FEB , 1980						
26...	12.7	4.2	.160	.19	.340	1.0
MAR						
12...	10.8	4.3	.180	.22	.800	2.5
APR						
08...	9.8	1.7	.150	.18	.100	.31
MAY						
07...	8.6	1.1	.140	.17	.140	.43

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	ACIDITY (MG/L AS CACO3)
MAY , 1980											
19...	1355	67	245	7.6	16.6	120	8.9	--	105	5	5.0
20...	1240	53	254	8.0	17.8	270	8.7	--	105	7	5.0
21...	1150	46	191	8.0	17.5	44	9.1	--	74	14	5.0
22...	1125	44	285	7.6	15.8	--	8.9	--	--	--	--
27...	1300	1260	197	7.2	9.0	2600	9.9	>11000	66	53	5.0
28...	1240	716	193	7.8	11.4	--	9.8	--	--	--	--
JUN											
06...	0900	120	186	6.0	14.3	--	9.4	--	--	--	--
11...	1400	64	270	8.0	21.6	230	7.3	--	--	--	--
12...	1245	54	220	8.0	18.2	60	8.3	100	87	--	10.0
19...	1230	207	166	7.8	20.1	110	8.2	240	61	12	--
25...	1145	114	162	8.1	18.5	110	8.4	K650	65	5	--
JUL											
30...	1200	9.8	323	8.6	21.6	5.0	12.2	68	160	8	.0
AUG											
26...	1200	7.1	373	8.7	17.7	3.5	--	36	167	--	.0
SEP											
23...	1200	8.5	360	8.7	13.9	2.2	13.1	130	166	6	.0

K Results based on colony count outside the acceptable range (non-ideal colony count).

12424003 HANGMAN CREEK AT MOUTH AT SPOKANE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)
MAY , 1980											
19...	28	8.5	11	18	.5	3.0	100	4.0	12	5.2	24
20...	28	8.6	11	18	.5	3.1	98	1.6	16	6.8	24
21...	20	5.9	7.6	18	.4	1.8	60	1.0	9.6	4.1	24
22...	--	--	--	--	--	--	--	--	--	--	--
27...	18	5.2	9.4	22	.5	4.0	13	1.3	57	16	20
28...	--	--	--	--	--	--	--	--	--	--	--
JUN											
06...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
12...	23	7.1	8.8	17	.4	3.4	92	1.5	11	6.1	28
19...	16	5.0	7.8	21	.5	3.4	49	1.2	13	6.7	--
25...	17	5.4	7.4	18	.4	5.4	60	.8	13	5.9	--
JUL											
30...	41	14	12	14	.4	4.9	160	.6	21	9.6	--
AUG											
26...	42	15	12	--	.4	--	170	.6	20	11	--
SEP											
23...	45	13	13	14	.5	4.6	160	.5	17	9.6	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)
MAY , 1980										
19...	157	152	.21	28.4	.58	.58	.160	.070	.19	.09
20...	161	157	.22	23.0	.68	.66	.180	.090	.22	.12
21...	125	109	.17	15.5	.68	--	.090	.070	.11	.09
22...	--	--	--	--	--	--	--	--	--	--
27...	127	138	.17	425	2.2	2.1	.890	.180	1.1	.23
28...	--	--	--	--	--	--	--	--	--	--
JUN										
06...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	1.3	--	.180	--	.22	--
12...	--	143	.19	20.9	1.0	1.0	.140	.000	.17	.00
19...	125	--	.17	69.9	.84	.85	.090	.100	.11	.13
25...	116	--	.16	35.7	.63	.63	.120	.040	.15	.05
JUL										
30...	232	--	.32	5.5	1.1	1.1	.020	.030	.02	.04
AUG										
26...	240	--	.33	4.6	1.5	1.4	.050	.020	.06	.03
SEP										
23...	224	--	.30	5.1	1.0	.99	.000	.000	.00	.00

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
MAY , 1980										
19...	1.7	.70	1.90	1.1	.77	2.5	11	.230	.71	.070
20...	.75	.58	.93	.26	.67	1.6	7.1	.410	1.3	.080
21...	.22	--	.31	--	--	.99	4.4	.160	.49	.050
22...	--	--	--	--	--	--	--	--	--	--
27...	8.2	.59	9.10	8.3	.77	11	50	1.70	5.2	.040
28...	--	--	--	--	--	--	--	--	--	--
JUN										
06...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	.440	1.4	--
12...	.69	.51	.83	.32	.51	1.8	8.1	.180	.55	.090
19...	.44	.47	.53	.00	.57	1.4	6.1	.210	.64	.080
25...	.88	.56	1.00	.40	.60	1.6	7.2	.300	.92	.130
JUL										
30...	.75	.65	.77	.09	.68	1.9	8.3	.080	.25	.040
AUG										
26...	.48	.51	.53	.00	.53	2.0	9.0	.030	.09	.040
SEP										
23...	.50	.56	.50	.00	.56	1.5	6.6	.020	.06	.030

12424003 HANGMAN CREEK AT MOUTH AT SPOKANE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, SUSPENDED RECOV. (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ANTIMONY, TOTAL (UG/L AS SB)	ANTIMONY, SUSPENDED TOTAL (UG/L AS SB)	ANTIMONY, DISSOLVED (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)
MAY , 1980											
19...	1355	500	480	20	--	--	--	4	2	2	100
20...	1240	2200	2200	40	--	--	--	4	1	3	100
21...	1150	640	590	50	0	0	0	4	2	2	100

DATE	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	BORON, TOTAL RECOVERABLE (UG/L AS B)	BORON, SUSPENDED RECOVERABLE (UG/L AS B)	BORON, DISSOLVED (UG/L AS B)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)
MAY , 1980											
19...	30	70	60	50	9	1	1	0	0	0	0
20...	30	70	60	50	10	1	1	0	0	0	0
21...	70	30	40	30	10	0	--	<1	0	0	0

DATE	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)
MAY , 1980											
19...	0	0	0	25	17	8	3900	3900	20	12	12
20...	2	2	0	27	20	7	5100	5100	40	44	42
21...	0	--	<3	10	--	<10	1400	1400	26	5	--

DATE	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM SUSPENDED RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
MAY , 1980											
19...	0	10	--	<4	130	110	20	.0	.0	.0	5
20...	2	10	6	4	160	130	30	.1	.1	.0	6
21...	<10	10	--	<4	70	70	2	.1	.1	.0	5

DATE	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
MAY , 1980										
19...	2	3	0	0	0	0	0	0	30	<3
20...	4	2	0	0	0	0	0	0	30	<3
21...	2	3	0	0	0	0	0	0	20	<3

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL)	ANTIMONY, DISSOLVED (UG/L AS SB)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BORON, DISSOLVED (UG/L AS B)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)
MAY , 1980										
27...	1300	40	--	--	--	20	--	--	--	--
JUN										
12...	1245	0	0	3	70	30	<1	0	<3	<10

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
MAY , 1980									
27...	270	--	--	--	--	--	--	--	--
JUN									
12...	74	54	<4	16	.0	3	0	0	<3

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA
(National Water Quality Surveillance System)

LOCATION.--Lat 47°41'48", long 117°29'48", in SE¼NE¼ sec.4, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010307, at Riverside State Park on west edge of Spokane, and at mile 66.1 (106.4 km).

DRAINAGE AREA.--5,010 mi² (12,980 km²), approximately.

PERIOD OF RECORD.--Water years 1973 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT , 1979											
11...	0900	1650	154	7.9	12.2	1.5	8	9.8	19	--	60
NOV											
13...	1215	2240	130	7.8	7.4	.50	15	11.5	100	--	55
DEC											
19...	1305	2410	123	7.8	5.9	.70	13	10.2	K45	--	55
JAN , 1980											
23...	1100	4420	103	7.4	3.2	1.5	24	10.4	K20	--	40
FEB											
20...	1115	3950	126	7.6	5.0	340	76	10.3	250	--	49
MAR											
13...	1155	7170	88	7.4	4.2	30	18	11.6	K19	--	35
APR											
09...	0930	5310	113	7.5	5.5	2.0	6	12.0	3900	--	45
MAY											
19...	1150	9910	76	7.2	12.0	15	33	10.8	--	--	31
20...	1030	4330	110	7.6	12.6	12	11	9.9	--	--	47
21...	1030	4290	91	7.8	13.8	7.4	--	9.9	--	--	37
27...	1135	15900	79	7.7	11.9	270	--	11.1	>800	K300	27
JUN											
12...	1040	8990	76	7.7	14.6	1.9	11	10.5	300	--	28
19...	1110	13700	64	7.6	16.2	4.5	--	10.6	56	K21	25
25...	0930	5910	100	7.9	17.3	3.8	--	9.2	76	K21	39
JUL											
08...	0900	3680	115	7.6	18.0	1.8	5	9.0	K960	--	47
30...	1030	1870	163	8.0	18.8	1.3	--	9.9	K7	<2	77
AUG											
21...	0845	1530	149	7.7	17.7	1.6	6	8.5	210	--	63
SEP											
22...	0745	2110	137	7.8	13.6	1.2	3	9.0	480	--	60

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	ACIDITY (MG/L AS CACO3)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	MAGNE-SIUM, SUS-PENDED TOTAL (MG/L AS MG)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
OCT , 1979											
11...	13	--	--	17	--	--	6.2	--	3.9	10	.2
NOV											
13...	3	--	--	14	--	--	5.0	--	4.0	13	.2
DEC											
19...	7	--	14	14	4.6	.0	5.0	3.4	4.0	13	.2
JAN , 1980											
23...	6	--	--	11	--	--	3.2	--	2.8	12	.1
FEB											
20...	15	--	--	12	--	--	4.7	--	5.6	19	.3
MAR											
13...	7	--	[illegible].6	9.2	2.9	.0	3.0	30	3.4	16	.2
APR											
09...	13	--	--	12	--	--	3.8	--	3.2	12	.2
MAY											
19...	10	.0	--	8.4	--	--	2.5	--	2.0	11	.1
20...	10	.0	--	12	--	--	4.3	--	2.6	10	.1
21...	3	.0	--	9.7	--	--	3.2	--	1.7	8	.1
27...	12	.0	--	7.4	--	--	2.2	--	2.8	17	.2
JUN											
12...	1	--	[illegible].7	8.0	2.2	.1	2.1	2.0	2.7	16	.2
19...	4	5	--	7.1	--	--	2.0	--	1.9	--	.1
25...	3	5	--	10	--	--	3.6	--	2.4	--	.1
JUL											
08...	4	--	--	12	--	--	4.2	--	2.6	10	.1
30...	12	.0	--	20	--	--	6.7	--	3.9	9	.1
AUG											
21...	6	--	--	16	--	--	5.7	--	3.5	10	.1
SEP											
22...	12	--	14	15	5.4	.0	5.5	2.7	3.3	10	.1

K Results based on colony count outside the acceptable range (non-ideal colony count).

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)
OCT , 1979											
11...	1.4	55	1.1	23	2.5	--	8.0	82	95	.11	365
NOV											
13...	1.3	52	1.3	12	3.1	--	8.0	87	78	.11	526
DEC											
19...	1.3	48	1.2	13	2.8	--	9.1	62	78	.08	403
JAN , 1980											
23...	1.1	34	<.1	14	2.4	--	8.4	63	63	.08	752
FEB											
20...	1.8	34	1.3	13	6.7	--	12	89	76	.12	949
MAR											
13...	1.0	28	1.7	12	1.3	--	8.6	58	55	.07	1123
APR											
09...	1.2	32	1.6	13	2.8	--	8.4	71	63	.09	1018
MAY											
19...	.8	21	<.1	7.9	.3	.1	8.2	44	43	.06	1177
20...	1.0	37	1.4	18	.7	.1	9.2	63	70	.08	737
21...	.7	34	.8	7.4	1.0	.1	8.8	54	53	.07	625
27...	1.0	15	.4	12	3.1	.1	9.5	40	47	.05	1717
JUN											
12...	.9	27	.8	2.2	2.0	--	8.2	51	42	.06	1183
19...	--	21	.8	8.8	1.5	.1	--	42	--	.05	1554
25...	--	36	.7	10	15	.2	--	54	--	.07	862
JUL											
08...	1.0	43	1.7	8.9	1.8	--	8.1	68	64	.09	676
30...	1.5	65	1.0	18	1.9	.2	--	91	--	.12	459
AUG											
21...	1.8	57	1.8	12	3.2	--	8.9	89	85	.12	368
SEP											
22...	1.3	48	1.0	10	3.9	--	8.3	85	76	.11	484

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)
OCT , 1979											
11...	0	.60	--	.050	--	.06	--	.52	--	.57	--
NOV											
13...	4	.52	--	.180	--	.22	--	.34	--	.52	--
DEC											
19...	0	.50	--	.090	--	.11	--	.33	--	.42	--
JAN , 1980											
23...	2	.45	--	.120	--	.15	--	.55	--	.67	--
FEB											
20...	710	1.3	--	.280	--	.34	--	2.3	--	2.60	--
MAR											
13...	18	.37	--	.100	--	.12	--	.42	--	.52	--
APR											
09...	0	.40	--	.260	--	.31	--	.54	--	.80	--
MAY											
19...	--	.18	.18	.130	.030	.16	.03	.20	.23	.33	.07
20...	--	.07	.00	.010	.000	.01	.00	.65	.62	.66	.04
21...	--	.18	.15	.060	--	.07	--	.49	--	.55	.02
27...	--	.31	.30	.200	.070	.24	.09	3.5	.59	3.70	3.0
JUN											
12...	6	.15	--	.090	--	.11	--	.48	--	.57	--
19...	--	.10	.10	.040	.030	.05	.03	.53	.32	.57	.22
25...	--	.18	.20	.030	.040	.04	.05	.34	.25	.37	.08
JUL											
08...	0	.21	--	.000	--	.00	--	.43	--	.43	--
30...	--	.59	.62	.100	.100	.12	.12	.68	.72	.78	.00
AUG											
21...	4	.62	--	.350	--	.42	--	2.6	--	3.00	--
SEP											
22...	7	.33	--	.000	--	.00	--	.37	--	.37	--

DATE	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
OCT , 1979											
11...	--	1.1	5.1	.000	.00	--	.050	.15	1.8	--	--
NOV											
13...	--	1.0	4.6	.040	.12	--	.010	.03	2.4	--	--
DEC											
19...	--	.92	4.0	.290	.89	--	.010	.03	2.7	--	--
JAN , 1980											
23...	--	1.1	4.9	.050	.15	--	.030	.09	3.2	--	--
FEB											
20...	--	3.9	17	.660	2.0	--	--	--	--	--	--

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
MAR											
13...	--	.89	3.9	.060	.18	--	.010	.03	2.9	--	--
APR											
09...	--	1.2	5.3	.050	.15	--	.000	.00	2.2	--	--
MAY											
19...	.26	.51	2.2	.060	.18	.010	--	--	--	--	--
20...	.62	.73	3.2	.040	.12	.010	--	--	--	--	--
21...	.53	.73	3.2	.050	.15	--	--	--	--	--	--
27...	.66	4.0	17	.290	.89	.020	--	--	--	--	--
JUN											
12...	--	.72	3.1	.030	.09	--	.010	.03	2.1	--	--
19...	.35	.67	2.9	.040	.12	.010	--	--	--	--	--
25...	.29	.55	2.4	.050	.15	.010	--	--	--	--	--
JUL											
08...	--	.64	2.8	.030	.09	--	.020	.06	2.1	--	--
30...	.82	1.3	6.0	.060	.18	.030	--	--	--	3	15
AUG											
21...	--	3.6	16	.030	.09	--	.010	.03	3.9	--	--
SEP											
22...	--	.70	3.0	.040	.12	--	.010	.03	2.7	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT , 1979										
11...	0900	--	--	1	--	--	30	--	--	<1
NOV										
13...	1215	--	--	1	--	--	20	--	--	1
DEC										
19...	1305	2	--	--	--	--	--	1	--	--
JAN , 1980										
23...	1100	--	--	2	--	--	20	--	--	<1
FEB										
20...	1115	--	--	4	--	--	100	--	--	0
MAR										
13...	1155	2	--	--	--	--	--	2	--	--
APR										
09...	0930	--	--	1	--	--	20	--	--	1
MAY										
19...	1150	2	0	2	0	0	30	1	1	0
20...	1030	2	1	1	0	0	30	1	1	0
21...	1030	2	1	1	0	0	10	1	--	<1
27...	1135	--	--	--	--	--	--	--	--	--
JUN										
12...	[illegible]	1	--	--	--	--	--	2	--	--
JUL										
08...	0900	--	--	2	--	--	20	--	--	<1
AUG										
21...	0845	--	--	5	--	--	20	--	--	<1
SEP										
22...	0745	1	--	--	--	--	--	1	--	--

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)
OCT , 1979										
11...	--	--	10	--	--	--	--	--	3	--
NOV										
13...	--	--	8	--	--	--	--	--	0	--
DEC										
19...	8	--	--	--	--	--	12	--	--	50
JAN , 1980										
23...	--	--	0	--	--	--	--	--	0	--
FEB										
20...	--	--	0	--	--	--	--	--	1	--
MAR										
13...	0	--	--	--	--	--	13	--	--	1500
APR										
09...	--	--	0	--	--	--	--	--	2	--
MAY										
19...	0	0	0	0	0	0	12	8	4	730
20...	0	0	0	0	0	0	6	4	2	380
21...	0	0	0	0	--	<3	5	--	<10	40
27...	--	--	--	--	--	--	--	--	--	--
JUN										
12...	0	--	--	--	--	--	6	--	--	110
JUL										
08...	--	--	0	--	--	--	--	--	2	--
AUG										
21...	--	--	10	--	--	--	--	--	1	--
SEP										
22...	0	--	--	--	--	--	8	--	--	90

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	IRON, SUS- PENDED RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDED RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDED RECOV. (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDED RECOV- ERABLE (UG/L AS HG)
OCT , 1979										
11...	--	--	--	--	7	--	--	--	1.2	--
NOV										
13...	--	--	--	--	10	--	--	--	1.1	--
DEC										
19...	--	--	13	--	--	--	--	--	.1	--
JAN , 1980										
23...	--	--	--	--	2	--	--	--	.0	--
FEB										
20...	--	--	--	--	0	--	--	--	.1	--
MAR										
13...	--	--	9	--	--	--	--	--	.1	--
APR										
09...	--	--	--	--	0	--	--	--	.8	--
MAY										
19...	710	20	29	29	0	40	30	7	.0	.0
20...	360	20	9	6	3	20	10	6	.0	.0
21...	20	23	0	--	<10	10	6	4	.1	.1
27...	--	130	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
JUN										
12...	--	--	9	--	--	--	--	--	.1	--
JUL										
08...	--	--	--	--	0	--	--	--	.0	--
AUG										
21...	--	--	--	--	4	--	--	--	.1	--
SEP										
22...	--	--	8	--	--	--	--	--	.1	--

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDED TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDED RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDED RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT , 1979										
11...	--	--	--	0	--	--	0	--	--	50
NOV										
13...	--	--	--	0	--	--	1	--	--	80
DEC										
19...	--	0	--	--	--	--	--	130	--	--
JAN , 1980										
23...	--	--	--	0	--	--	0	--	--	110
FEB										
20...	--	--	--	0	--	--	0	--	--	10
MAR										
13...	--	0	--	--	--	--	--	190	--	--
APR										
09...	--	--	--	0	--	--	0	--	--	140
MAY										
19...	.0	0	0	0	0	0	0	160	70	90
20...	.0	0	0	0	0	0	0	110	30	80
21...	.0	0	0	0	0	0	0	40	10	20
27...	--	--	--	--	--	--	--	--	--	--
JUN										
12...	--	0	--	--	--	--	--	120	--	--
JUL										
08...	--	--	--	0	--	--	0	--	--	70
AUG										
21...	--	--	--	0	--	--	0	--	--	50
SEP										
22...	--	0	--	--	--	--	--	100	--	--

12431000 LITTLE SPOKANE RIVER AT DARTFORD, WA

LOCATION.--Lat 47°47'05", long 117°24'12", in NE¼NW¼ sec.5, T.26 N., R.43 E., Spokane County, Hydrologic Unit 17010308, on left bank 50 ft (15 m) upstream from county bridge, 0.5 mi (0.8 km) east of Dartford, 1.7 mi (2.7 km) downstream from Deadman Creek, 7.5 mi (12.1 km) north of Spokane, and at mile 11.4 (18.3 km).

DRAINAGE AREA.--665 mi^2 (1,722 km^2).

PERIOD OF RECORD.--April 1929 to September 1932, December 1946 to current year, chemical analyses July 1960 to September 1970, water temperatures July 1968 to September 1970.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1930, 1932(M), 1947-49(M). WSP 1446: 1951(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,590 ft (485 m), from topographic map. Prior to Mar. 16, 1951, nonrecording gage and Mar. 16, 1951, to July 5, 1961, water-stage recorder, at site 0.5 mi (0.8 km) downstream at different datum.

REMARKS.--Records excellent. No regulation. Small diversions for irrigation above station.

AVERAGE DISCHARGE.--36 years (water years 1930-32, 1948-80), 309 ft^3/s (8.751 m^3/s), 6.31 in/yr (160 mm/yr), 223,900 acre-ft/yr (276 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,170 ft^3/s (89.8 m^3/s) Feb. 17, 1970, gage height, 7.29 ft (2.222 m); minimum observed, 63 ft^3/s (1.78 m^3/s) July 24, 1930, gage height, 1.07 ft (0.326 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 711 ft^3/s (20.1 m^3/s) Feb. 29, gage height, 3.89 ft (1.186 m); minimum 73 ft^3/s (2.07 m^3/s) Jan. 26, gage height, 1.63 ft (0.497 m), due to ice buildup above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	141	137	173	154	535	342	324	342	175	109	116
2	114	141	141	181	159	515	327	303	333	169	108	123
3	114	141	152	185	194	471	321	292	318	165	108	123
4	113	144	161	181	212	483	318	278	306	161	106	119
5	113	148	167	177	183	408	321	264	292	159	106	118
6	113	144	161	145	183	383	342	261	280	157	105	116
7	113	144	163	130	189	386	354	261	272	152	105	118
8	113	142	161	130	194	367	339	251	259	152	103	116
9	111	141	161	130	185	361	351	264	246	150	103	118
10	113	141	163	135	185	357	433	272	238	152	102	113
11	111	139	152	145	179	412	386	253	236	163	103	114
12	111	137	152	173	177	408	361	241	229	157	102	114
13	113	135	148	187	173	379	357	233	280	152	102	128
14	113	133	154	194	140	386	361	229	289	148	102	142
15	113	132	165	217	130	389	361	236	253	150	102	137
16	113	133	159	221	160	357	354	342	241	146	100	128
17	113	144	155	231	171	351	351	364	226	142	103	125
18	118	155	194	205	212	395	348	312	217	139	121	123
19	132	148	207	150	303	412	339	292	207	137	123	125
20	139	141	205	150	464	383	348	275	200	135	118	126
21	133	137	200	155	475	373	357	261	196	132	114	125
22	130	135	194	160	333	361	357	259	194	128	111	123
23	132	141	187	180	292	351	345	264	205	126	109	123
24	137	141	185	175	264	342	336	256	196	125	108	121
25	137	141	185	171	264	336	327	253	189	123	106	121
26	139	139	181	120	295	333	321	315	196	119	106	121
27	142	135	181	110	507	357	312	324	205	118	108	121
28	152	120	177	110	615	367	300	318	196	116	111	121
29	148	123	171	110	667	354	321	327	187	113	113	121
30	144	137	167	135	---	361	336	379	181	111	111	119
31	142	---	169	148	---	357	---	357	---	109	113	---
TOTAL	3842	4173	5255	5014	7659	12030	10326	8860	7209	4381	3341	3658
MEAN	124	139	170	162	264	388	344	286	240	141	108	122
MAX	152	155	207	231	667	535	433	379	342	175	123	142
MIN	111	120	137	110	130	333	300	229	181	109	100	113
CFSM	.19	.21	.26	.24	.40	.58	.52	.43	.36	.21	.16	.18
IN.	.21	.23	.29	.28	.43	.67	.58	.50	.40	.25	.19	.20
AC-FT	7620	8280	10420	9950	15190	23860	20480	17570	14300	8690	6630	7260

CAL YR 1979 TOTAL 77744 MEAN 213 MAX 853 MIN 91 CFSM .32 IN 4.35 AC-FT 154200
WTR YR 1980 TOTAL 75748 MEAN 207 MAX 667 MIN 100 CFSM .31 IN 4.24 AC-FT 150200

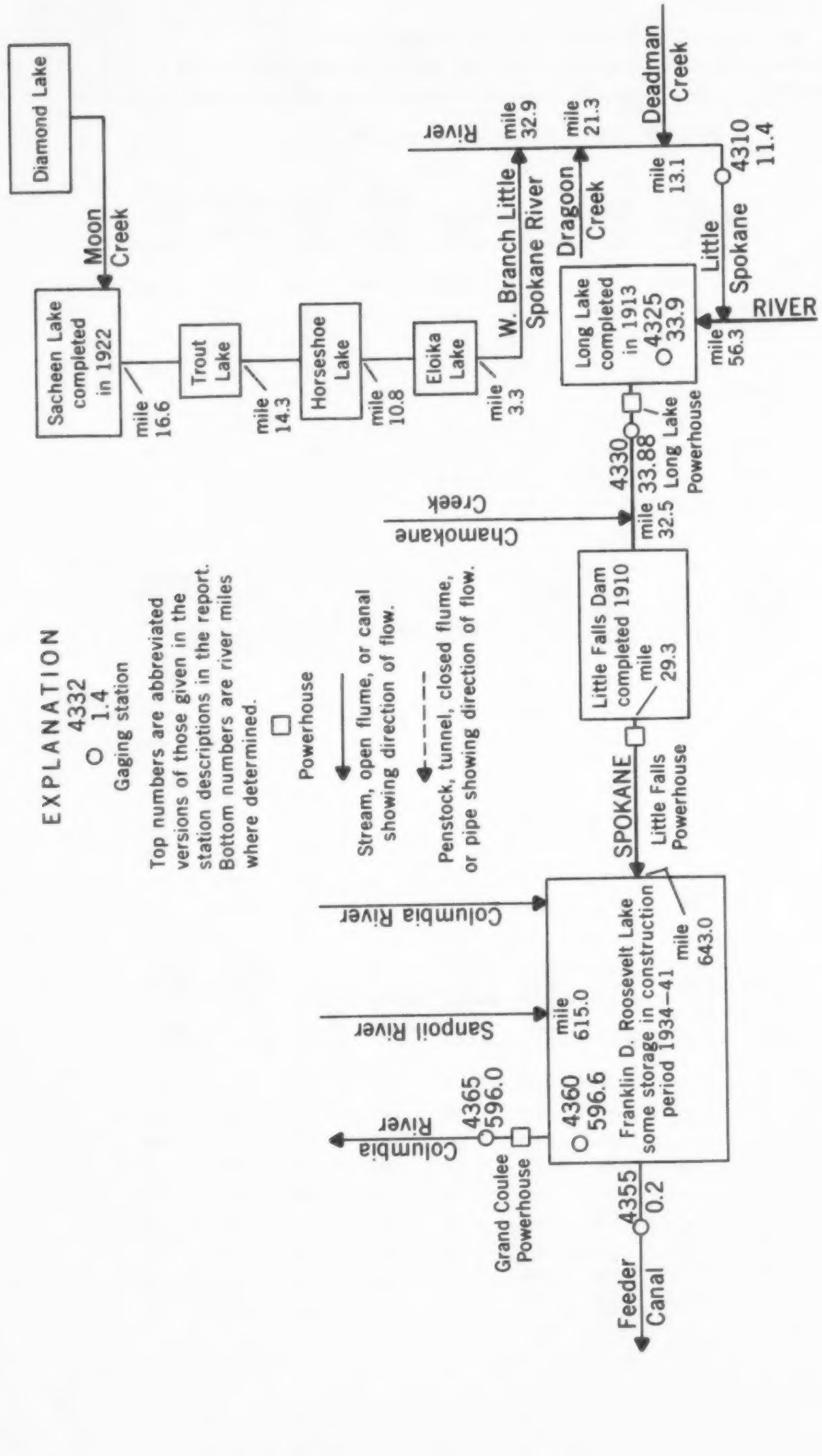
Diamond Lake
Moon Creek
Sacheen Lake completed in 1922
mile 16.6
Trout Lake
mile 14.3
Horseshoe Lake
mile 10.8
Eloika Lake
mile 3.3
W. Branch Little Spokane River
River
mile 32.9
Dragoon Creek
mile 21.3
Deadman Creek
mile 13.1
4310 11.4
Little Spokane
RIVER
Long Lake completed in 1913
4325 33.9
mile 56.3
4330 33.88
mile 32.5
Long Lake Powerhouse
Chamokane Creek
Little Falls Dam completed 1910
mile 29.3
SPOKANE
Little Falls Powerhouse
Columbia River
Sanpoil River
mile 615.0
mile 643.0
4360 596.6
Franklin D. Roosevelt Lake some storage in construction period 1934–41
4365 596.0
Columbia River
Grand Coulee Powerhouse
4355 0.2
Feeder Canal
EXPLANATION
4332 1.4
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 9. Gaging stations in Spokane River basin from Little Spokane River downstream and at Grand Coulee Dam.

12431900 LITTLE SPOKANE RIVER NEAR MOUTH, NEAR SPOKANE, WA

LOCATION.--Lat 47°47'00", long 117°31'44", in SE¼NW¼ sec.5, T.26 N., R.42 E., Spokane County, Hydrologic Unit 17010308, at Tumtum Road bridge, 5.3 mi (8.5 km) northwest of Spokane and at mile 1.1 (1.8 km).

DRAINAGE AREA.--700 mi^2 (1,813 km^2).

PERIOD OF RECORD.--Water years 1971, 1973, 1977 to June 1980 (discontinued).

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is fair.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)
OCT , 1979									
17...	1545	371	320	7.3	10.2	10	6.0	10.7	122
NOV									
14...	1030	395	245	7.9	6.1	9	8.0	11.7	136
DEC									
12...	0940	417	270	7.9	6.0	2	25	10.7	129
JAN , 1980									
09...	1505	447	255	7.8	3.5	16	5.0	11.8	124
FEB									
26...	0855	562	260	7.9	5.5	8	30	11.4	111
MAR									
12...	1140	716	225	7.8	6.4	7	60	10.3	100
APR									
08...	1540	638	220	7.9	7.2	--	10	11.0	97
MAY									
07...	0950	546	230	7.9	13.2	6	35	8.4	111
JUN									
11...	1445	516	250	7.7	16.1	--	60	8.8	106

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)
OCT , 1979									
17...	1	29	12	4.2	6	.1	2.4	120	9.5
NOV									
14...	15	33	13	5.1	7	.1	2.1	120	2.4
DEC									
12...	9	32	12	5.0	8	.2	2.5	120	2.4
JAN , 1980									
09...	14	30	12	4.9	7	.1	2.2	110	2.7
FEB									
26...	11	28	10	5.2	9	.2	2.4	100	2.0
MAR									
12...	10	25	9.2	5.3	10	.2	2.4	90	2.2
APR									
08...	4	24	9.1	4.4	8	.2	2.1	93	1.8
MAY									
07...	11	28	10	4.8	8	.2	1.9	100	2.0
JUN									
11...	9	26	10	4.6	8	.2	2.0	97	3.0

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979									
17...	17	3.4	1.2	.020	.02	.010	.03	.030	.09
NOV									
14...	21	3.2	1.4	.020	.02	.020	.06	.000	.00
DEC									
12...	11	4.3	1.3	.020	.02	.030	.09	.010	.03
JAN , 1980									
09...	16	3.1	1.2	.050	.06	.060	.18	.010	.03
FEB									
26...	13	3.7	1.2	.040	.05	.060	.18	.030	.09
MAR									
12...	13	3.0	.94	.040	.05	.070	.21	.040	.12
APR									
08...	12	2.1	.79	.120	.15	.050	.15	.010	.03
MAY									
07...	12	2.1	.88	.060	.07	.060	.18	.010	.03
JUN									
11...	11	2.5	.79	.010	.01	.020	.06	.010	.03

SPOKANE RIVER BASIN

12431900 LITTLE SPOKANE RIVER NEAR MOUTH, NEAR SPOKANE, WA--Continued

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	LEAD, DIS-SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1979											
17...	1545	4	40	<1	0	0	2	.3	0	0	<3
NOV											
14...	1030	4	50	<1	0	0	30	.2	0	0	<3
DEC											
12...	0940	3	50	<1	0	0	12	.7	0	0	8
JAN , 1980											
09...	1505	3	40	<1	0	0	13	.8	0	0	<3
FEB											
26...	0855	5	50	<1	0	0	1	1.3	0	1	<3
MAR											
12...	1140	2	50	<1	0	3	4	1.2	0	0	6
APR											
08...	1540	3	40	<1	0	3	15	.4	0	0	4
MAY											
07...	0950	3	40	<1	0	2	16	1.1	0	0	<3
JUN											
11...	1445	3	40	<1	0	2	13	.5	0	0	<3

12432500 LONG LAKE AT LONG LAKE, WA

LOCATION.--Lat 47°50'12", long 117°50'20", in NW¼SW¼ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, at left end of spillway at Long Lake Dam on Spokane River, 12 mi (19 km) north of Reardan and at mile 33.9 (54.5 km).

DRAINAGE AREA.--6,020 mi^2 (15,600 km^2), approximately.

PERIOD OF RECORD.--October 1913 to current year. Prior to October 1950 monthend contents only, published in WSP 1316. October 1950 to September 1977 monthend stage and contents only.

REVISED RECORDS.--WSP 1736: Monthend contents for 1916-33 corrected. WSP 1933: Drainage area.

GAGE.--Water-stage recorder with remote indicator in powerhouse. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Washington Water Power Co.).

REMARKS.--Reservoir is formed by concrete dam, completed in 1913 and raised in 1950. Capacity, 104,200 acre-ft (128 hm^3) between elevations 1,512 ft (460.9 m) and 1,536 ft (468.2 m), normal limits of operation. Contents at elevation 1,512 ft (460.9 m) by capacity table used prior to October 1915, 148,600 acre-ft (183 hm^3). Records given herein represent usable contents. Water used for power. About 25,000 acres (100 km^2) irrigated above station, largely from wells in the Spokane Valley. Flow regulated by Coeur d'Alene Lake (see sta 12415500) and powerplants along Spokane River.

COOPERATION.--Lake elevations and capacity table furnished by Washington Water Power Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 107,600 acre-ft (133 hm^3) Jan. 16, 1974, elevation, 1,536.67 ft (468.377 m); minimum, since filling reservoir in 1920, 5,400 acre-ft (6.66 hm^3) Mar. 8, 1966, elevation, 1,513.50 ft (461.315 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 104,300 acre-ft (129 hm^3) July 30, elevation, 1,536.02 ft (468.179 m); minimum, 29,000 acre-ft (35.8 hm^3) Feb. 25, elevation, 1,519.62 ft (463.180 m).

Capacity table (elevation, in feet and usable contents, in acre-feet)
(Based on data furnished by Washington Water Power Company)

1,513	3,570	1,528	65,460	1,534	94,240
1,517	18,640	1,531	79,740	1,535	99,190
1,520	30,550	1,532	84,540	1,536	104,200
1,522	38,880	1,533	89,360	1,537	109,300
1,526	56,330				

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1535.48	1535.62	1535.18	1535.43	1528.51	1521.22	1533.10	1534.43	1534.99	1535.66	1535.60	1535.53
2	1535.57	1535.61	1535.49	1535.43	1528.20	1521.80	1533.11	1534.62	1535.14	1535.60	1535.50	1535.40
3	1535.68	1535.60	1535.50	1535.49	1527.71	1522.58	1533.11	1535.03	1535.26	1535.42	1535.63	1535.31
4	1535.70	1535.65	1535.52	1535.53	1527.27	1523.36	1533.11	1535.34	1535.25	1535.38	1535.30	1535.38
5	1535.64	1535.69	1535.46	1535.55	1526.92	1524.15	1533.10	1535.35	1535.64	1535.33	1535.52	1535.32
6	1535.70	1535.72	1535.42	1535.54	1526.59	1524.90	1533.05	1535.32	1535.71	1535.28	1535.60	1535.50
7	1535.64	1535.74	1535.42	1535.57	1526.16	1525.68	1533.06	1535.35	1535.78	1535.17	1535.60	1535.42
8	1535.57	1535.50	1535.46	1535.55	1525.05	1526.42	1533.05	1535.33	1535.70	1534.97	1535.55	1535.46
9	1535.55	1535.58	1535.43	1535.58	1525.44	1527.15	1532.98	1535.27	1535.77	1535.21	1535.63	1535.39
10	1535.49	1535.61	1535.40	1535.63	1525.00	1527.84	1532.98	1535.21	1535.70	1535.20	1535.70	1535.35
11	1535.46	1535.55	1535.41	1535.67	1524.59	1528.57	1532.98	1535.21	1535.80	1535.10	1535.56	1535.30
12	1535.46	1535.49	1535.43	1535.71	1524.08	1529.43	1533.18	1535.17	1535.73	1534.86	1535.61	1535.36
13	1535.48	1535.49	1535.30	1535.69	1523.56	1530.00	1533.36	1535.20	1535.67	1535.47	1535.70	1535.40
14	1535.30	1535.46	1535.43	1535.61	1523.01	1530.49	1533.33	1535.37	1535.65	1535.26	1535.62	1535.45
15	1535.41	1535.42	1535.46	1535.40	1522.34	1531.18	1533.32	1535.46	1535.78	1535.26	1535.62	1535.47
16	1535.48	1535.42	1535.48	1535.26	1521.71	1531.63	1533.69	1535.57	1535.53	1535.57	1535.60	1535.25
17	1535.42	1535.45	1535.51	1535.06	1521.08	1531.85	1534.24	1535.67	1535.40	1535.73	1535.54	1535.24
18	1535.46	1535.42	1535.53	1534.70	1520.70	1531.64	1535.02	1535.56	1535.38	1535.40	1535.52	1535.20
19	1535.63	1535.31	1535.47	1534.35	1520.73	1531.72	1534.92	1535.64	1535.40	1535.22	1535.33	1535.18
20	1535.68	1535.29	1535.41	1533.96	1520.76	1531.96	1535.22	1535.90	1535.78	1535.31	1535.43	1535.17
21	1535.68	1535.49	1535.50	1533.66	1520.96	1532.05	1535.22	1535.76	1535.75	1535.32	1535.45	1535.34
22	1535.56	1535.50	1535.46	1533.40	1520.66	1532.16	1535.08	1535.49	1535.72	1535.30	1535.54	1535.36
23	1535.42	1535.55	1535.48	1533.03	1520.01	1532.28	1535.14	1535.38	1535.80	1535.25	1535.53	1535.33
24	1535.28	1535.54	1535.48	1532.69	1519.80	1532.39	1534.92	1535.43	1535.81	1535.32	1535.53	1535.40
25	1535.42	1535.58	1535.42	1532.33	1519.71	1532.42	1534.89	1535.10	1535.80	1535.42	1535.44	1535.32
26	1535.43	1535.41	1535.52	1531.95	1519.81	1532.42	1534.96	1535.53	1535.69	1535.36	1535.22	1535.40
27	1535.49	1535.38	1535.53	1531.56	1519.90	1532.52	1534.45	1535.10	1535.60	1535.20	1535.51	1535.35
28	1535.51	1535.26	1535.54	1530.95	1520.11	1532.70	1534.06	1534.60	1535.78	1535.26	1535.28	1535.40
29	1535.54	1535.12	1535.52	1530.33	1520.67	1532.91	1534.16	1534.81	1535.64	1535.47	1535.26	1535.35
30	1535.55	1535.15	1535.49	1529.74	---	1533.05	1534.29	1534.83	1535.72	1535.70	1535.41	1535.30
31	1535.60	---	1535.51	1529.17	---	1533.10	---	1535.00	---	1535.69	1535.56	---
MEAN	1535.53	1535.49	1535.46	1534.05	1523.17	1529.41	1533.90	1535.26	1535.61	1535.34	1535.51	1535.35
MAX	1535.70	1535.74	1535.54	1535.71	1528.51	1533.10	1535.22	1535.90	1535.81	1535.73	1535.70	1535.53
MIN	1535.28	1535.12	1535.18	1529.17	1519.71	1521.22	1532.98	1534.43	1534.99	1534.86	1535.22	1535.17
†	102,206	99,948	101,754	71,025	33,337	89,845	95,674	99,195	102,808	102,657	102,005	100,700
‡	+602	-2,258	+1,806	-30,729	-37,688	+56,508	+5,829	+3,521	+3,613	-151	-652	-1,305

CAL YR 1979....................‡ +13,651
WTR YR 1980....................‡ -904

† Total contents, in acre-feet, at end of month.
‡ Change in contents, in acre-feet.

12433000 SPOKANE RIVER AT LONG LAKE, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 47°50'12", long 117°50'25", in NW¼SW¼ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, on left bank at Long Lake powerhouse, 1.4 mi (2.3 km) upstream from Chamokane Creek, 12 mi (19 km) north of Reardan, and at mile 33.88 (54.51 km).

DRAINAGE AREA.--6,020 mi^2 (15,590 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,299.00 ft (395.935 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Flow regulated by Coeur d'Alene Lake (see sta 12415500) and Long Lake (see sta 12432500) for powerplants of Washington Water Power Co. About 25,000 acres (100 km^2) irrigated above station, largely from wells in the Spokane Valley.

COOPERATION.--Discharge records furnished by Washington Water Power Co.; three discharge measurements made by Geological Survey.

AVERAGE DISCHARGE.--41 years, 7,946 ft^3/s (225.0 m^3/s) 5,757,000 acre-ft/yr (7,100 hm^3), adjusted for storage in Long Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,700 ft^3/s (1,410 m^3/s) Jan. 19, 1974, gage height, 78.40 ft (23.896 m); maximum recorded gage height, 78.66 ft (23.976 m) May 24, 1948; minimum daily discharge, 114 ft^3/s) (3.23 m^3/s) Sept. 2, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,300 ft^3/s (575 m^3/s) Apr. 27, elevation, 1,368.90 ft (417.241 m); minimum, 180 ft^3/s (5.10 m^3/s) Aug. 27, elevation, 1,362.02 ft (415.144 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2520	2690	2670	4090	6110	5860	6110	18900	17500	5430	2280	2660
2	2010	2750	2680	4110	6070	5940	6180	18400	16700	5150	1990	3120
3	2000	2780	2660	3790	6140	5910	6200	17800	16600	5200	1790	2690
4	2180	2770	2680	4110	5710	5930	6140	17800	16400	5300	3040	2630
5	2220	2720	2740	4040	5470	5960	6210	18200	14000	5200	1610	2630
6	2180	2700	2740	4120	5490	5990	6190	18300	7410	5220	1460	2080
7	2330	2690	2660	4050	5470	6040	6210	17700	6770	5240	2110	2770
8	2330	3430	2690	4080	5430	6050	6240	18100	9250	4890	1300	2620
9	2370	2710	2740	4010	5450	6070	6180	17800	7780	3520	780	2740
10	2350	2700	2710	4120	5460	6100	6200	17200	10000	4330	1030	2740
11	2230	2920	2670	4320	5430	6150	6190	16800	9200	5130	1980	2610
12	2350	2990	2660	5230	5420	6130	6250	16200	9840	4270	1610	2610
13	2400	2870	3120	4240	5420	6390	6420	15400	10900	2730	1420	2630
14	2380	2820	2280	5350	5520	6750	6870	14100	12800	4040	1980	2600
15	2140	2700	2750	6310	5370	6810	6840	15400	13200	4070	1850	2780
16	2120	2720	2740	6260	5370	6850	6890	13300	15800	3470	2120	3110
17	2380	2720	2750	6220	5350	6870	7020	13200	15400	3510	2050	2720
18	2340	2750	3350	6260	5360	6870	7560	12500	14800	4030	2890	2590
19	2360	3070	3370	6240	5320	6820	10100	11300	13500	3790	3150	2700
20	2380	2640	2780	6270	5610	6640	10200	6540	8670	2710	1910	2680
21	2730	2060	2780	6120	5740	6870	12400	5990	9500	2680	3080	2020
22	3110	2660	3560	5880	5870	6900	13300	6330	9110	2730	2210	2730
23	3150	2660	3140	6260	5870	6950	16600	6560	10200	2680	2640	2730
24	3260	2660	3340	6210	5860	6910	15300	6400	8160	2730	2640	2630
25	2370	2660	4000	6200	5740	6910	16600	6560	6920	2760	2470	2700
26	2730	3040	3600	6150	5780	6900	17400	7430	6980	2780	2060	2700
27	2660	2790	3710	6230	5810	6940	18000	15500	6890	2780	1900	2720
28	2680	2920	3900	6100	5820	6270	18800	19000	6880	1930	3010	2730
29	2680	2990	3830	6110	5820	6230	18300	17600	6810	1420	2480	2700
30	2660	2660	4030	6130	---	6290	18400	17800	5990	2860	2090	2740
31	2670	---	3970	6080	---	6230	---	17700	---	1950	2300	---
TOTAL	76270	83240	95300	164770	163280	199530	301300	441810	323960	114530	65230	80110
MEAN	2460	2775	3074	5315	5630	6436	10040	14250	10800	3695	2104	2670
MAX	3260	3430	4030	6310	6140	6950	18800	19000	17500	5430	3150	3120
MIN	2000	2060	2280	3790	5320	5860	6110	5990	5990	1420	780	2020
AC-FT	151300	165100	189000	326800	323900	395800	597600	876300	642600	227200	129400	158900
†	+602	-2,258	+1,806	-30,729	-37,688	+56,508	+5,829	+3,521	+3,613	-151	-652	-1,305
MEAN‡	2,470	2,737	3,103	4,815	4,976	7,356	10,140	14,310	10,860	3,693	2,094	2,648
AC-FT‡	151,902	162,842	190,806	296,071	286,212	452,308	603,429	879,821	646.213	227,049	128,748	157,595

CAL YR 1979: TOTAL 2,318,240 MEAN 6,351 MAX 31,000 MIN 760 AC-FT 4,598,000
DO.....: MEAN‡ 6,370 CFSM‡ 1.06 IN‡ 14.37 AC-FT‡ 4,611,451
WTR YR 1980: TOTAL 2,109,330 MEAN 5,763 MAX 19,000 MIN 780 AC-FT 4,184,000
DO.....: MEAN‡ 5,762 CFSM‡ 0.96 IN‡ 13.03 AC-FT‡ 4,183,900

† Change in contents, in acre-feet, in Long Long.
‡ Adjusted for change in contents, in Long Lake.

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued
(National Stream-Quality Accounting Network Station)

WATER-QUALITY RECORDS

LOCATION.--Water Quality monitor, lat 47°50'26", long 117°51'11", in SE¼NW¼ sec.14, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, on right bank 0.7 mi (1.1 km) downstream from Long Lake Dam and 13 mi (21 km) north of Reardan.

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1973 to current year.
WATER TEMPERATURES: July 1959 to September 1962, October 1966 to September 1970, March 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since March 1973.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. In addition to the water-quality monitor record, samples were collected approximately once a month.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 235 micromhos Sept. 8, 1973; minimum, 50 micromhos May 19, 1976.
WATER TEMPERATURES: Maximum, 24.5°C Aug. 18, 1959; minimum, 0.0°C Jan. 21, Feb. 26, 1960.

EXTREMES OUTSIDE PERIOD OF DAILY RECORD.--Specific conductance: Maximum, 238 micromhos Oct. 2-3, 1961.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 201 micromhos Sept. 3; minimum recorded, 70 micromhos June 11.
WATER TEMPERATURES: Maximum recorded 20.5°C Aug. 11-13, 15; minimum recorded, 2.5°C Jan. 19-22.

QUALITY WATER DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT , 1979										
10...	1200	3950	167	7.3	15.1	1.1	5.5	<1	<1	74
NOV										
14...	1105	2670	172	7.4	9.6	1.2	7.8	<1	<1	81
DEC										
17...	1245	2760	175	8.0	5.1	.80	9.4	<1	6	80
JAN , 1980										
23...	0915	6360	152	7.4	2.8	1.0	10.2	1	3	66
FEB										
21...	1130	5850	153	7.4	3.2	8.7	10.8	3	7	67
MAR										
12...	1115	6030	118	7.3	4.3	23	9.8	K11	K3	57
APR										
08...	1140	6330	113	7.6	6.2	2.6	10.6	5	2	47
MAY										
12...	1355	15800	75	7.3	12.7	3.1	10.7	4	<1	29
JUN										
11...	1130	8480	80	7.4	14.5	4.7	10.2	3	<1	28
JUL										
09...	1200	4170	106	7.5	18.0	1.4	8.6	<1	<1	45
AUG										
20...	1215	2200	160	7.6	19.4	1.3	8.0	3	1	71
SEP										
22...	1130	3850	183	7.8	16.7	1.8	7.1	1	<1	80

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT , 1979										
10...	8	18	7.2	3.8	9	.1	1.6	66	5.2	12
NOV										
14...	15	20	7.6	4.3	10	.2	1.6	66	4.1	14
DEC										
17...	5	20	7.5	4.5	10	.2	1.6	75	1.1	13
JAN , 1980										
23...	9	17	5.9	3.5	10	.1	1.4	57	3.6	12
FEB										
21...	11	17	6.1	3.5	9	.1	1.4	56	3.5	13
MAR										
12...	12	15	4.8	3.3	10	.1	1.6	45	3.5	11
APR										
08...	12	12	4.2	2.8	11	.1	1.2	35	1.3	13
MAY										
12...	7	7.9	2.4	1.9	11	.1	.8	22	1.7	8.6
JUN										
11...	4	7.6	2.4	2.1	13	.1	.8	24	1.5	7.1
JUL										
09...	4	12	3.7	2.4	10	.1	1.0	41	2.0	12
AUG										
20...	5	18	6.4	3.7	9	.1	1.4	66	2.3	12
SEP										
22...	4	20	7.5	4.8	9	.2	1.6	76	1.9	9.5

K Results based on colony count outside the acceptable range (non-ideal colony count).

SPOKANE RIVER BASIN

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

QUALITY WATER DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT , 1979 10...	2.6	.1	7.1	98	92	.13	1045	.40	.40	.070
NOV 14...	2.9	.1	7.5	109	97	.14	786	.68	.70	.100
DEC 17...	3.2	.1	7.9	109	103	.14	812	.58	.53	.100
JAN , 1980 23...	2.9	.1	9.9	100	87	.13	1717	.57	.58	.100
FEB 21...	3.6	.1	10	94	88	.12	1485	.60	.62	.120
MAR 12...	1.8	.1	11	76	75	.10	1237	.79	.79	.130
APR 08...	1.7	.1	9.4	71	65	.09	1213	.53	.51	.060
MAY 12...	.9	.1	7.6	49	43	.06	2090	.07	.09	.000
JUN 11...	.8	.1	7.6	42	42	.05	962	.09	.08	.040
JUL 09...	2.6	.1	7.8	73	66	.09	822	.11	.11	.000
AUG 20...	3.3	.1	8.6	95	93	.12	564	.52	.51	.030
SEP 22...	3.6	.2	7.9	115	99	.15	1195	.48	.49	.000

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)
OCT , 1979 10...	.080	.08	.10	.80	.33	.87	.46	.41	1.2	5.6
NOV 14...	.080	.12	.10	.41	.34	.51	.09	.42	1.1	5.2
DEC 17...	.060	.12	.07	3.2	.31	3.30	2.9	.37	3.8	17
JAN , 1980 23...	.080	.12	.10	.66	.18	.76	.50	.26	1.3	5.8
FEB 21...	.130	.15	.16	1.1	.35	1.30	.82	.48	1.9	8.4
MAR 12...	.120	.16	.15	.47	.42	.60	.06	.54	1.3	6.1
APR 08...	.070	.07	.09	1.0	.40	1.10	.63	.47	1.6	7.2
MAY 12...	.010	.00	.01	.44	.25	.44	.18	.26	.51	2.2
JUN 11...	.070	.05	.09	.61	.54	.65	.04	.61	.74	3.2
JUL 09...	.040	.00	.05	.52	.50	.52	.00	.54	.63	2.7
AUG 20...	.020	.04	.02	2.1	.19	2.20	2.0	.21	2.7	12
SEP 22...	.000	.00	.00	.46	.38	.46	.08	.38	.94	4.1

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1979 10...	.010	.03	.010	--	2.0	.3	3	31	--
NOV 14...	.010	.03	.010	3.8	--	--	4	28	--
DEC 17...	.020	.06	.100	1.7	--	--	4	29	--
JAN , 1980 23...	.040	.12	.020	--	3.3	.1	3	51	--
FEB 21...	.030	.09	.030	2.5	--	--	18	284	35
MAR 12...	.070	.21	.060	2.4	--	--	25	407	91
APR 08...	.050	.15	.010	--	.7	.2	6	103	--
MAY 12...	.040	.12	.010	3.3	--	--	7	299	--
JUN 11...	.030	.09	.010	2.1	--	--	13	298	--
JUL 09...	.040	.12	.010	--	2.3	.1	4	45	--
AUG 20...	.030	.09	.020	4.9	--	--	6	35	--
SEP 22...	.020	.06	.040	2.7	--	--	6	62	--

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

QUALITY WATER DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

RADIOCHEMICAL ANALYSES

DATE	TIME	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	URANIUM DISSOLVED, EXTRACTION (UG/L)
OCT , 1979 10...	1200	<1.1	<.3	2.0	<.4	2.0	<.4	.90
MAY , 1980 12...	1355	<.3	<.3	1.2	<.4	1.1	<.4	.14

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)
OCT , 1979 10...	1200	4	1	3	0	0	50	1	0	<1
DEC 17...	1245	--	--	--	--	--	--	--	--	--
JAN , 1980 23...	0915	2	0	2	100	80	20	1	0	<1
MAR 12...	1115	--	--	--	--	--	--	--	--	--
APR 08...	1140	2	0	3	0	0	30	1	0	<1
JUN 11...	1130	--	--	--	--	--	--	--	--	--
JUL 09...	1200	2	0	2	0	0	20	1	--	<1

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT , 1979 10...	10	10	0	0	0	<3	8	7	1	280
DEC 17...	--	--	--	--	--	--	--	--	--	--
JAN , 1980 23...	0	0	0	0	0	<3	8	8	0	60
MAR 12...	--	--	--	--	--	--	--	--	--	--
APR 08...	0	0	0	3	0	<3	8	6	2	210
JUN 11...	--	--	--	--	--	--	--	--	--	--
JUL 09...	0	0	0	0	--	<3	33	31	2	90

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)
OCT , 1979 10...	--	150	3	1	2	140	70	70	.8	.0
DEC 17...	--	--	--	--	--	--	--	--	--	--
JAN , 1980 23...	50	<10	43	43	0	20	10	10	.1	.1
MAR 12...	--	--	--	--	--	--	--	--	--	--
APR 08...	190	20	4	4	0	30	20	10	.9	.9
JUN 11...	--	--	--	--	--	--	--	--	--	--
JUL 09...	--	<10	39	37	2	10	5	5	.0	.0

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

QUALITY WATER DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1979 10...	.0	0	0	0	0	0	0	40	40	<3
DEC 17...	--	--	--	--	0	--	--	--	--	--
JAN , 1980 23...	.0	0	0	0	0	0	0	70	0	80
MAR 12...	--	--	--	--	2	--	--	--	--	--
APR 08...	.0	0	0	0	0	0	0	120	30	90
JUN 11...	--	--	--	--	0	--	--	--	--	--
JUL 09...	.0	0	0	0	0	0	0	140	110	30

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)
NOV , 1979 14...	1105	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB , 1980 27...	1130	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 12...	1355	ND	ND	.06	ND	ND	ND	--	ND	ND	--	ND
AUG 20...	1215	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV , 1979 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB , 1980 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--
MAY 12...	ND	ND	--	ND	--	--	--	ND	--	--	--	--
AUG 20...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
OCT , 1979 10...	1200	.160	.310	6.47	4.82
JAN , 1980 23...	0915	1.18	1.57	2.72	1.54
APR 08...	1150	.150	.180	.240	.000

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

	NOV 16,79	MAR 12,80	MAY 12,80	JUN 11,80
DATE	NOV 16,79	MAR 12,80	MAY 12,80	JUN 11,80
TIME	1105	1115	1355	1130
TOTAL CELLS/ML	260	670	830	4300
DIVERSITY: DIVISION	0.7	0.8	0.5	0.8
.CLASS	0.7	0.8	0.5	0.8
..ORDER	1.3	1.6	1.4	1.3
...FAMILY	2.2	2.1	1.6	1.5
....GENUS	2.5	2.8	2.0	2.1

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	--	-	51	1
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	14	2	--	-	64	1
....CHODATELLA	--	-	--	-	--	-	#	0
....DICTYOSPHAERIUM	--	-	--	-	--	-	140	3
....OOCYSTIS	--	-	--	-	--	-	--	-
....QUADRIGULA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	--	-
....SCENEDESMUS	52*	20	--	-	--	-	51	1
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	--	-	26	1
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	14	2	--	-	--	-
....MELOSIRA	39*	15	190*	29	350*	42	550	13
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	14	2	--	-	--	-
...DIATOMACEAE								
....DIATOMA	13	5	--	-	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	180*	27	250*	30	2600*	59
....FRAGILARIA	91*	35	41	6	120	14	480	11
....SYNEDRA	13	5	55	8	--	-	51	1
...MERIDIONACEAE								
....MERIDION	--	-	14	2	--	-	--	-
...NAVICULACEAE								
....NAVICULA	--	-	14	2	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	13	5	28	4	33	4	51	1
...TABELLARIACEAE								
....TABELLARIA	39*	15	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	--	-	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	310	7
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	82	10	--	-
...RIVULARIACEAE								
....RAPHIDIOPSIS	--	-	110*	16	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-

NOTE: * - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
- OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

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12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	JUL 9,80	AUG 20,80	SEP 22,80
TIME	1200	1215	1130
TOTAL CELLS/ML	1900	690	5100
DIVERSITY: DIVISION	0.9	1.1	0.9
.CLASS	0.9	1.1	0.9
..ORDER	1.4	1.7	1.2
...FAMILY	1.9	2.1	1.2
....GENUS	2.4	2.3	1.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	26	1	*	0	--	-
...COELASTRACEAE						
....COELASTRUM	--	-	96	14	180	4
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	39	2	--	-	--	-
....CHODATELLA	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-
....OOCYSTIS	--	-	71	10	120	2
....QUADRIGULA	--	-	25	4	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	25	4	--	-
....SCENEDESMUS	26	1	--	-	--	-
..TETRASPORALES						
...PALMELLACEAE						
....SPHAEROCYSTIS	--	-	180#	27	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	*	0
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	--	-
....MELOSIRA	190	10	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	--	-	--	-
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
...FRAGILARIACEAE						
....ASTERIONELLA	930#	48	--	-	100	2
....FRAGILARIA	230	12	270#	39	400	8
....SYNEDRA	13	1	--	-	--	-
...MERIDIONACEAE						
....MERIDION	--	-	--	-	--	-
...NAVICULACEAE						
....NAVICULA	--	-	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	140	7	--	-	--	-
...TABELLARIACEAE						
....TABELLARIA	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	16	2	4000#	78
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	170	9	--	-	280	6
...OSCILLATORIACEAE						
....OSCILLATORIA	180	9	--	-	--	-
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	--	-	26	1
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	192	186	189	---	---	---	181	179	180	185	184	184
2	193	185	188	---	---	---	181	180	181	184	183	184
3	189	181	186	---	---	---	181	180	181	183	180	181
4	188	179	182	---	---	---	183	181	182	181	179	180
5	184	179	181	---	---	---	183	181	182	180	179	180
6	182	178	180	---	---	---	185	182	183	180	180	180
7	181	175	178	---	---	---	185	183	184	180	179	179
8	181	172	177	---	---	---	185	184	185	179	177	178
9	180	171	175	---	---	---	186	183	185	177	171	174
10	---	---	---	---	---	---	185	181	183	172	169	170
11	---	---	---	---	---	---	182	180	181	170	168	169
12	---	---	---	---	---	---	184	181	182	170	166	168
13	---	---	---	---	---	---	184	182	183	170	166	168
14	---	---	---	183	180	182	186	183	184	170	167	169
15	---	---	---	184	179	181	185	181	183	166	165	166
16	---	---	---	182	181	182	183	181	182	166	163	165
17	---	---	---	182	182	182	183	182	182	163	155	159
18	---	---	---	182	179	181	182	182	182	160	154	157
19	---	---	---	181	180	180	183	182	182	160	151	156
20	---	---	---	181	178	179	183	181	182	151	149	150
21	---	---	---	182	178	180	183	182	182	151	150	150
22	---	---	---	179	178	179	182	181	182	151	149	150
23	---	---	---	180	179	179	181	180	181	---	---	---
24	---	---	---	181	178	179	181	181	181	---	---	---
25	---	---	---	179	179	179	182	181	181	---	---	---
26	---	---	---	179	177	178	182	181	182	---	---	---
27	---	---	---	178	176	177	182	181	182	---	---	---
28	---	---	---	179	176	177	182	180	181	---	---	---
29	---	---	---	179	176	178	182	180	181	---	---	---
30	---	---	---	180	178	179	181	181	181	---	---	---
31	---	---	---	---	---	---	184	181	182	---	---	---
MONTH	193	171	182	184	176	180	186	179	182	185	149	169

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	160	157	158	119	113	116	85	80	83
2	---	---	---	158	156	157	119	113	116	81	78	80
3	---	---	---	157	153	155	118	112	115	83	77	79
4	---	---	---	152	147	149	116	112	113	82	76	78
5	---	---	---	149	146	147	115	111	113	78	73	76
6	---	---	---	147	144	145	114	112	113	77	73	74
7	---	---	---	146	143	144	116	111	113	79	72	75
8	---	---	---	143	140	142	114	112	113	81	76	78
9	---	---	---	139	136	138	118	114	115	79	75	77
10	---	---	---	135	129	130	121	114	118	81	75	77
11	---	---	---	130	126	127	127	113	119	81	73	77
12	---	---	---	130	125	128	129	117	122	78	74	76
13	---	---	---	124	121	123	132	120	124	78	73	75
14	---	---	---	123	120	121	126	121	123	77	71	74
15	---	---	---	124	120	122	131	123	126	74	72	72
16	---	---	---	120	117	118	132	122	125	76	71	73
17	---	---	---	116	111	112	128	123	126	80	72	75
18	---	---	---	---	---	---	129	122	125	78	73	76
19	---	---	---	---	---	---	127	122	124	79	77	78
20	---	---	---	113	108	110	124	121	122	80	78	79
21	155	153	154	115	111	113	120	116	119	80	76	78
22	156	153	155	112	108	110	119	114	116	80	77	78
23	156	152	154	125	107	117	114	109	112	79	75	77
24	157	154	156	121	111	115	111	106	110	79	76	78
25	158	156	157	118	109	112	105	100	103	80	78	79
26	157	157	157	110	109	110	104	97	101	79	78	78
27	158	157	157	118	110	113	96	91	93	85	78	81
28	159	157	158	113	110	111	93	87	90	94	84	90
29	160	155	157	117	112	113	88	83	84	101	94	98
30	---	---	---	125	112	119	88	83	85	105	99	102
31	---	---	---	119	114	117	---	---	---	105	102	103
MONTH	160	152	156	160	107	127	132	83	113	105	71	80

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	102	93	96	93	87	89	143	139	141	19'	185	188
2	91	85	89	---	---	---	148	143	145	189	184	186
3	85	80	83	---	---	---	152	144	147	201	193	196
4	79	77	78	---	---	---	159	152	155	195	191	193
5	78	74	76	---	---	---	158	151	154	194	189	192
6	78	73	76	---	---	---	158	154	156	194	191	193
7	79	73	76	---	---	---	158	154	156	194	188	191
8	79	72	76	---	---	---	157	155	156	198	191	194
9	78	72	75	---	---	---	156	152	155	196	192	194
10	77	71	74	---	---	---	157	149	153	196	192	193
11	78	70	74	---	---	---	155	151	153	197	193	195
12	74	72	73	---	---	---	156	152	154	199	192	196
13	79	72	75	---	---	---	155	152	153	197	189	193
14	85	77	81	---	---	---	155	152	153	196	191	194
15	87	82	85	---	---	---	156	151	153	194	190	193
16	93	84	89	---	---	---	159	153	157	193	190	192
17	96	90	93	125	120	123	158	155	156	194	191	192
18	95	90	92	125	121	123	161	154	158	193	190	191
19	95	88	91	126	121	124	162	158	160	191	185	189
20	91	86	89	128	124	126	165	158	160	190	181	186
21	90	84	87	131	126	128	159	155	157	188	183	186
22	86	82	84	135	128	131	158	154	156	189	185	186
23	85	81	83	138	133	135	158	155	156	187	180	185
24	85	79	82	136	130	134	171	155	161	187	184	185
25	84	82	83	135	129	132	173	166	169	185	182	183
26	89	81	85	136	131	134	169	165	167	184	177	180
27	90	84	87	139	134	136	171	165	167	182	172	176
28	92	84	88	143	134	138	178	169	173	181	171	175
29	92	85	88	144	139	141	180	175	177	178	172	175
30	93	84	88	145	135	140	181	179	180	180	169	174
31	---	---	---	145	136	141	188	180	184	---	---	---
MONTH	102	70	83	145	87	130	188	139	159	201	169	188

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	17.0	16.5	16.5	---	---	---	6.5	6.5	6.5	4.0	4.0	4.0
2	17.0	16.5	16.5	---	---	---	6.5	6.5	6.5	4.0	4.0	4.0
3	17.0	16.0	16.5	---	---	---	6.5	6.5	6.5	4.0	4.0	4.0
4	16.5	16.0	16.5	---	---	---	6.5	6.5	6.5	4.0	4.0	4.0
5	16.5	15.5	16.0	---	---	---	6.5	6.0	6.0	4.0	4.0	4.0
6	16.5	16.0	16.0	---	---	---	6.5	6.0	6.0	4.0	3.5	4.0
7	16.5	16.0	16.0	---	---	---	6.0	6.0	6.0	3.5	3.5	3.5
8	16.5	15.5	16.0	---	---	---	6.0	6.0	6.0	3.5	3.0	3.5
9	16.5	15.5	16.0	---	---	---	6.0	5.5	6.0	3.0	3.0	3.0
10	---	---	---	---	---	---	5.5	5.5	5.5	3.0	3.0	3.0
11	---	---	---	---	---	---	5.5	5.0	5.5	3.0	3.0	3.0
12	---	---	---	---	---	---	5.5	5.5	5.5	3.0	2.5	3.0
13	---	---	---	---	---	---	5.5	5.5	5.5	3.0	2.5	3.0
14	---	---	---	10.0	9.5	9.5	5.5	5.5	5.5	3.0	3.0	3.0
15	---	---	---	10.0	9.5	9.5	5.5	5.0	5.5	3.0	3.0	3.0
16	---	---	---	9.5	9.5	9.5	5.0	5.0	5.0	3.0	3.0	3.0
17	---	---	---	9.5	9.5	9.5	5.0	4.5	5.0	3.0	3.0	3.0
18	---	---	---	9.5	9.0	9.5	5.0	5.0	5.0	3.0	3.0	3.0
19	---	---	---	9.0	9.0	9.0	5.0	5.0	5.0	3.0	2.5	3.0
20	---	---	---	9.0	8.5	8.5	5.0	5.0	5.0	2.5	2.5	2.5
21	---	---	---	8.5	8.0	8.0	5.0	5.0	5.0	2.5	2.5	2.5
22	---	---	---	8.0	8.0	8.0	5.0	4.5	5.0	2.5	2.5	2.5
23	---	---	---	8.0	8.0	8.0	4.5	4.5	4.5	---	---	---
24	---	---	---	8.0	7.5	7.5	4.5	4.5	4.5	---	---	---
25	---	---	---	7.5	7.5	7.5	4.5	4.5	4.5	---	---	---
26	---	---	---	7.5	7.0	7.5	4.5	4.5	4.5	---	---	---
27	---	---	---	7.0	7.0	7.0	4.5	4.5	4.5	---	---	---
28	---	---	---	7.0	6.5	7.0	4.5	4.5	4.5	---	---	---
29	---	---	---	7.0	6.5	6.5	4.5	4.0	4.5	---	---	---
30	---	---	---	6.5	6.5	6.5	4.0	4.0	4.0	---	---	---
31	---	---	---	---	---	---	4.5	4.0	4.0	---	---	---
MONTH	17.0	15.5	16.0	10.0	6.5	8.0	6.5	4.0	5.5	4.0	2.5	3.5

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	4.0	3.5	4.0	6.0	5.5	6.0	10.5	9.5	10.0
2	---	---	---	4.0	4.0	4.0	6.5	6.0	6.5	10.5	10.0	10.0
3	---	---	---	4.0	4.0	4.0	6.5	6.0	6.5	11.0	10.0	10.5
4	---	---	---	4.0	4.0	4.0	6.0	6.0	6.0	11.0	10.5	10.5
5	---	---	---	4.0	4.0	4.0	6.5	6.0	6.5	11.5	10.5	11.0
6	---	---	---	4.5	4.0	4.0	6.5	6.0	6.0	11.5	10.5	11.0
7	---	---	---	4.5	4.0	4.0	6.0	6.0	6.0	12.5	11.0	12.0
8	---	---	---	4.5	4.5	4.5	6.5	6.0	6.0	12.5	12.0	12.5
9	---	---	---	4.5	4.5	4.5	6.5	6.0	6.5	12.5	12.0	12.5
10	---	---	---	4.5	4.0	4.5	6.5	6.0	6.5	12.5	12.0	12.5
11	---	---	---	4.5	4.5	4.5	6.5	6.0	6.5	13.0	12.0	12.5
12	---	---	---	4.5	4.0	4.5	7.0	6.5	6.5	13.0	12.5	12.5
13	---	---	---	4.5	4.0	4.5	7.5	7.0	7.0	13.0	12.5	12.5
14	---	---	---	4.5	4.5	4.5	7.0	6.5	7.0	13.0	12.0	12.5
15	---	---	---	4.5	4.5	4.5	7.0	6.5	6.5	12.5	12.5	12.5
16	---	---	---	4.5	4.0	4.5	7.5	6.5	7.0	12.5	12.5	12.5
17	---	---	---	4.5	4.5	4.5	8.0	7.5	7.5	13.0	12.5	12.5
18	---	---	---	---	---	---	8.0	7.0	7.5	12.5	12.5	12.5
19	---	---	---	---	---	---	8.5	7.5	8.0	12.5	12.5	12.5
20	---	---	---	4.5	4.5	4.5	8.0	7.5	8.0	13.5	12.5	12.5
21	3.5	3.0	3.5	4.5	4.5	4.5	8.0	7.5	8.0	14.0	12.5	13.0
22	3.5	3.0	3.5	5.0	4.5	5.0	9.0	8.0	8.5	13.5	12.5	12.5
23	3.5	3.0	3.0	5.5	5.0	5.0	9.0	8.5	8.5	13.0	12.5	13.0
24	3.5	3.0	3.5	5.5	5.0	5.0	9.0	8.5	9.0	13.5	12.5	13.0
25	4.0	3.5	3.5	5.5	5.0	5.0	9.0	8.0	8.5	13.0	12.5	13.0
26	4.0	4.0	4.0	5.0	5.0	5.0	9.0	8.5	9.0	13.5	12.5	13.0
27	4.0	4.0	4.0	5.5	5.0	5.5	9.0	8.5	8.5	13.5	13.0	13.5
28	4.0	3.5	4.0	5.5	5.0	5.5	9.5	8.5	9.0	13.5	13.5	13.5
29	4.0	3.5	4.0	5.5	5.5	5.5	9.0	8.5	8.5	13.5	13.0	13.0
30	---	---	---	5.5	5.5	5.5	10.0	9.0	9.5	13.5	13.0	13.5
31	---	---	---	6.0	5.5	5.5	---	---	---	13.5	13.0	13.5
MONTH	4.0	3.0	3.5	6.0	3.5	4.5	10.0	5.5	7.5	14.0	9.5	12.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	13.0	13.5	17.5	17.0	17.5	---	---	---	18.5	18.0	18.0
2	14.0	13.0	13.5	---	---	---	20.0	19.0	19.5	18.0	17.0	18.0
3	14.0	13.5	14.0	---	---	---	19.0	18.5	18.5	18.0	17.0	17.5
4	14.0	14.0	14.0	---	---	---	19.5	18.5	19.0	18.0	18.0	18.0
5	14.0	13.5	14.0	---	---	---	19.5	18.5	19.0	18.0	17.5	18.0
6	14.5	14.0	14.0	---	---	---	19.5	18.5	19.0	18.0	18.0	18.0
7	14.5	13.5	14.0	---	---	---	20.0	18.5	19.5	18.0	17.5	17.5
8	14.5	14.0	14.5	---	---	---	19.5	19.0	19.5	18.0	17.0	17.5
9	14.5	14.0	14.0	---	---	---	20.0	18.5	19.5	18.0	17.5	18.0
10	14.5	13.5	14.0	---	---	---	20.0	18.5	19.5	18.0	17.5	17.5
11	14.5	14.0	14.5	---	---	---	20.5	19.5	20.0	17.5	17.5	17.5
12	14.5	14.5	14.5	---	---	---	20.5	19.5	20.0	18.0	17.5	17.5
13	14.5	14.5	14.5	---	---	---	20.5	19.5	20.0	18.0	17.5	17.5
14	15.0	14.5	14.5	---	---	---	20.0	19.0	19.5	18.0	17.5	18.0
15	15.0	14.5	15.0	---	---	---	20.5	19.0	19.5	18.0	17.0	17.5
16	15.5	15.0	15.0	---	---	---	20.0	18.5	19.5	17.5	17.0	17.5
17	15.5	15.0	15.5	18.5	18.0	18.0	20.0	19.0	19.5	17.5	17.5	17.5
18	15.5	15.5	15.5	19.0	18.0	18.5	19.5	18.5	19.0	17.5	17.0	17.5
19	16.5	15.5	16.0	19.0	18.0	18.5	19.5	19.0	19.0	17.5	17.0	17.0
20	16.5	16.0	16.5	19.0	18.0	18.5	19.5	18.5	19.0	17.0	16.0	16.5
21	17.0	16.5	16.5	---	---	---	19.0	19.0	19.0	17.0	16.0	16.5
22	17.0	16.5	17.0	---	---	---	19.0	18.5	19.0	17.0	16.5	16.5
23	17.0	16.5	16.5	---	---	---	19.5	18.5	19.0	16.5	16.5	16.5
24	17.5	16.5	17.0	---	---	---	18.5	18.0	18.5	16.5	16.5	16.5
25	17.5	17.0	17.5	---	---	---	19.0	18.5	19.0	16.5	16.5	16.5
26	17.0	17.0	17.0	---	---	---	19.5	18.5	19.0	16.5	16.5	16.5
27	17.0	16.5	16.5	---	---	---	19.5	18.0	18.5	16.5	16.0	16.5
28	17.5	17.0	17.0	---	---	---	18.5	17.5	18.0	16.5	16.0	16.5
29	17.5	17.0	17.0	---	---	---	18.5	18.5	18.5	16.5	16.0	16.0
30	17.5	16.5	17.0	---	---	---	19.0	18.5	18.5	16.5	15.5	16.0
31	---	---	---	---	---	---	18.5	18.0	18.5	---	---	---
MONTH	17.5	13.0	15.5	19.0	17.0	18.0	20.5	17.5	19.0	18.5	15.5	17.0

12434590 SANPOIL RIVER ABOVE JACK CREEK AT KELLER, WA

LOCATION.--Lat 48°05'04", long 118°41'25", in NW¼SW¼ sec.20, T.30 N., R.33 E., Ferry County, Hydrologic Unit 17020004, at road bridge 0.4 mi (0.6 km) upstream from Jack Creek, 0.5 mi (0.8 km) northwest of Keller, 2.4 mi (3.9 km) downstream from gaging station, and at mile 11.7 (18.8 km).

DRAINAGE AREA.--About 890 mi^2 (2,310 km^2), approximately.

PERIOD OF RECORD.--Water years 1960-1966 (partial-record station published as 12435000), 1972 (published as 12434500 "near Keller"), 1975 to June 1980 (discontinued).

REMARKS.--Water discharge from rating, discharge value is fair. Water temperature records collected July 1968 to September 1970 and chemical analyses collected October 1972 to February 1973, at gaging station 2.4 mi (3.9 km) upstream.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1930

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)
NOV , 1979 06...	1530	62	195	8.4	6.8	5	.50	10.4
JAN , 1980 15...	1330	--	189	7.5	.8	5	.60	11.9
MAR 03...	1130	740	144	7.3	3.5	25	9.0	10.8
APR 01...	0950	400	155	7.4	5.4	10	3.3	11.0
JUN 02...	1130	1170	131	7.7	10.4	30	8.4	9.3

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV , 1979 06...	1	.02	.000	.00	.020	.06	.010	.03
JAN , 1980 15...	1	.07	.000	.00	.030	.09	.010	.03
MAR 03...	K7	.31	.000	.00	.110	.34	.130	.39
APR 01...	4	.04	.000	.00	.060	.18	--	--
JUN 02...	K32	.07	.010	.01	.090	.28	.040	.12

DIVERSION AT GRAND COULEE DAM

12435500 FEEDER CANAL AT GRAND COULEE, WA

LOCATION.--Lat 47°57'05", long 118°59'40", on line between secs. 1 and 2, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, on left bank at Grand Coulee, 0.2 mi (0.3 km) downstream from intake and 0.5 mi (0.8 km) southwest of Grand Coulee Dam.

PERIOD OF RECORD.--October 1951 to current year.

GAGE.--Recording flowmeters on rated pumps. Prior to Jan. 10, 1978, water stage recorder.

REMARKS.--Water is pumped (beginning May 1951) from Franklin D. Roosevelt Lake behind Grand Coulee Dam, through a lift of about 280 ft (85 m) into feeder canal for a distance of 2 mi (3.2 km) into Banks Lake (formerly called equalizing reservoir). From Banks Lake it is distributed through a system of canals to the Columbia Basin project. Daily discharge computed from pump rating and head. On December 23, 1974, two pump generators (Nos. 7 and 8) were put into operation; these are used to generate power during peak power demand periods in winter months by utilizing the water stored in Banks Lake and returning it back into Franklin D. Roosevelt Lake. Water will be pumped into Banks Lake during periods of low power demand.

COOPERATION.--Discharge records furnished by Water and Power Resources Service; records reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 13,300 ft^3/s (337 m^3/s) Oct. 21-25, 1978; minimum daily discharge, 1,920 ft^3/s (54.4 m^3/s) Feb. 24, 1975, reverse flow from Banks Lake.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 13,200 ft^3/s (374 m^3/s) May 30; no flow except during pumping season.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6320	.00	.00	.00	.00	.00	.00	200	6750	5170	7060	.00
2	6310	.00	.00	.00	.00	.00	.00	.0	6750	6320	7050	.00
3	6310	.00	.00	.00	.00	.00	.00	4510	6750	9020	7050	.00
4	6270	.00	.00	.00	.00	.00	.00	9010	6760	11100	7050	.00
5	6430	.00	.00	.00	.00	.00	.00	9070	8400	11900	7050	.00
6	7870	.00	.00	.00	.00	.00	.00	9080	5160	11900	7060	.00
7	7870	.00	.00	.00	.00	.00	.00	9730	5160	11000	7060	.00
8	7510	.00	.00	.00	.00	.00	.00	10500	5160	10300	3020	.00
9	6300	.00	.00	.00	.00	.00	.00	11500	5160	10300	.00	.00
10	6290	.00	.00	.00	.00	.00	.00	4860	5150	7570	.00	.00
11	6280	.00	.00	.00	.00	.00	.00	1600	5160	7000	.00	.00
12	6270	.00	.00	.00	.00	.00	.00	9970	5160	7100	.00	.00
13	6260	.00	.00	.00	.00	.00	.00	12300	5000	7100	.00	.00
14	6260	.00	.00	.00	.00	.00	.00	13000	5160	7110	.00	.00
15	5800	.00	.00	.00	.00	.00	.00	13000	5160	7110	.00	.00
16	4690	.00	.00	.00	.00	.00	.00	13000	5160	7110	.00	.00
17	4630	.00	.00	.00	.00	.00	.00	13100	5160	7100	.00	.00
18	4690	.00	.00	.00	.00	.00	.00	13000	5160	7110	.00	.00
19	2210	.00	.00	.00	.00	.00	.00	13100	5160	7110	.00	.00
20	30	.00	.00	.00	.00	.00	.00	13200	5160	7110	.00	.00
21	.0	.00	.00	.00	.00	.00	.00	13100	5160	7100	.00	.00
22	.0	.00	.00	.00	.00	.00	.00	11300	5160	7100	.00	.00
23	.0	.00	.00	.00	.00	.00	.00	8480	5160	7090	.00	.00
24	.0	.00	.00	.00	.00	.00	.00	8470	5160	7080	.00	.00
25	.0	.00	.00	.00	.00	.00	.00	7640	5170	7080	.00	.00
26	.0	.00	.00	.00	.00	.00	.00	6650	5170	7080	.00	.00
27	.0	.00	.00	.00	.00	.00	.00	6670	5170	7090	.00	.00
28	.0	.00	.00	.00	.00	.00	.00	6700	5160	7080	.00	.00
29	.0	.00	.00	.00	.00	.00	.00	6720	5160	7080	.00	.00
30	.0	.00	.00	.00	---	.00	.00	6730	5160	7080	.00	.00
31	.0	---	.00	.00	---	.00	---	6740	---	7070	.00	---
TOTAL	114600.0	.00	.00	.00	.00	.00	.00	272930.0	164270	243470	52400.00	.00
MEAN	3697	.000	.000	.000	.000	.000	.000	8804	5476	7854	1690	.000
MAX	7870	.00	.00	.00	.00	.00	.00	13200	8400	11900	7060	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	5000	5170	.00	.00
AC-FT	227300	.00	.00	.00	.00	.00	.00	541400	325800	482900	103900	.00

CAL YR 1979 TOTAL 1346450.00 MEAN 3689 MAX 13100 MIN .00 AC-FT 2671000
WTR YR 1980 TOTAL 847670.00 MEAN 2316 MAX 13200 MIN .00 AC-FT 1681000

12436000 FRANKLIN D. ROOSEVELT LAKE AT GRAND COULEE DAM, WA

LOCATION.--Lat 47°57'20", long 118°59'02", near center of sec.1, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, in block 12 of Grand Coulee Dam on Columbia River, and at mile 596.6 (959.9 km).

DRAINAGE AREA.--74,700 mi² (193,500 km²) approximately.

PERIOD OF RECORD.--April 1938 to current year. Prior to October 1943, published as Columbia River Reservoir at Grand Coulee Dam.

REVISED RECORDS.--WSP 1286: 1942, 1945(M). WSP 1316: 1942 (May monthend contents). WSP 1933: Drainage area.

CORRECTIONS.--WRD Wash. 1973: 1965, 1967. WDR WA-75-1: 1974 monthend contents.

GAGE.--Water-stage recorder. Datum of gage is at 0.00 ft (0.000 m), Water and Power Resources Service datum, adjustment of 1937, or 1.425 ft (0.434 m) National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service). Prior to Apr. 24, 1942, nonrecording gage at site 2,000 ft (610 m) upstream at same datum.

REMARKS.--Reservoir is formed by concrete dam; construction of dam began in 1934; completed in 1941; storage began early in construction period. Capacity, 5,022,179 acre-ft (6,190 hm³) between elevations, 1,208 ft (368.2 m), proposed lower limit of operation, and 1,288 ft (392.6 m), top of gates. Capacity increased to 5,185,452 acre-ft (6,390 hm³) by use of 2 ft (0.6 m) flashboards installed after high-water period each year beginning August 1961. Storage below 1,208 ft (368.2 m), 4,209,207 acre-ft (5,190 hm³). Figures given herein represent total contents. Water is used for power development and irrigation. Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversions by Feeder Canal (see sta 12435500) and for irrigation of about 350,000 acres (141,700 hm²) in the United States plus an additional 37,000 acres (15,000 hm²) in Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents recorded, 9,586,200 acre-ft (11,800 hm³) July 17, 1942, June 3, 1945, elevation, 1,290.3 ft (393.28 m); maximum elevation, 1,290.36 ft (393.302 m), Aug. 6, 1976; minimum contents observed, 16,200 acre-ft (20.0 hm³) Aug. 29, 1938, elevation 956.1 ft (291.42 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,408,456 acre-ft (11,600 hm³) June 5, elevation, 1,290.17 ft (393.744 m); minimum, 4,999,885 acre-ft (6,160 hm³) Apr. 15, elevation, 1,224.24 ft (373.148 m).

Capacity table dated October 24, 1975 (elevation, in feet, and contents, in acre-feet)
(Prepared by Geological Survey from data furnished by Water and Power Resources Service)

1,210.0	4,301,035	1,270.0	7,864,082
1,230.0	5,300,657	1,291.0	9,477,261
1,250.0	6,501,603		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1283.39	1280.97	1264.87	1280.11	1261.51	1249.55	1233.76	1254.66	1288.65	1289.79	1287.81	1287.96
2	1283.03	1280.59	1265.52	1279.50	1261.70	1250.42	1232.64	1256.81	1288.70	1289.88	1287.34	1287.32
3	1282.87	1280.19	1265.45	1278.45	1262.24	1249.69	1231.47	1258.91	1289.36	1289.77	1287.51	1286.67
4	1282.80	1279.92	1266.13	1277.45	1261.77	1249.46	1230.62	1261.36	1290.06	1289.69	1287.55	1286.13
5	1282.85	1279.54	1267.20	1276.41	1260.80	1248.95	1229.68	1262.61	1289.81	1289.81	1287.75	1285.94
6	1283.15	1279.27	1268.44	1275.48	1259.63	1248.38	1228.83	1263.71	1289.96	1289.92	1287.98	1285.31
7	1283.65	1278.95	1269.57	1274.48	1258.89	1248.29	1227.58	1264.91	1289.82	1289.72	1288.10	1285.50
8	1283.25	1278.35	1270.85	1273.60	1258.34	1248.26	1226.20	1266.21	1289.82	1289.53	1287.98	1285.58
9	1282.75	1277.92	1271.89	1272.82	1257.90	1248.36	1224.95	1267.61	1289.77	1289.34	1287.87	1285.95
10	1282.23	1277.82	1272.15	1272.40	1257.50	1247.31	1224.89	1269.82	1289.75	1289.63	1288.63	1286.34
11	1281.70	1277.75	1272.00	1272.16	1256.63	1246.19	1224.90	1272.38	1289.71	1289.48	1288.50	1286.95
12	1280.73	1277.08	1272.76	1271.77	1255.59	1244.95	1225.02	1273.65	1289.55	1289.64	1288.12	1287.67
13	1280.34	1275.84	1273.56	1271.69	1254.69	1243.99	1225.65	1274.25	1289.54	1289.80	1287.70	1288.67
14	1280.55	1274.65	1274.46	1271.44	1252.97	1242.99	1224.72	1274.73	1289.80	1289.91	1287.41	1289.56
15	1280.35	1273.37	1275.47	1271.64	1251.92	1242.18	1224.62	1275.65	1290.08	1289.74	1287.10	1289.56
16	1279.96	1272.44	1276.04	1272.10	1250.38	1242.09	1224.95	1276.28	1289.95	1289.68	1286.81	1289.59
17	1279.69	1272.02	1276.74	1272.10	1249.93	1241.07	1225.10	1277.28	1290.03	1289.71	1287.28	1289.42
18	1279.36	1271.91	1277.75	1271.36	1249.72	1239.99	1226.04	1278.90	1290.08	1289.95	1287.56	1289.08
19	1279.17	1270.91	1279.23	1271.21	1249.71	1239.04	1227.38	1279.66	1290.01	1289.75	1287.88	1288.30
20	1279.57	1269.59	1280.26	1271.25	1249.54	1238.66	1228.85	1280.14	1289.91	1289.74	1288.08	1288.40
21	1280.04	1268.81	1280.82	1270.85	1249.50	1238.61	1230.88	1280.28	1289.93	1289.62	1288.30	1288.76
22	1280.69	1268.68	1281.53	1270.62	1249.55	1238.84	1232.95	1280.32	1289.92	1289.26	1288.72	1288.37
23	1281.25	1268.03	1282.03	1270.25	1249.32	1239.30	1235.50	1280.50	1290.00	1289.06	1289.22	1288.26
24	1281.52	1267.53	1282.71	1269.60	1249.07	1239.01	1237.86	1281.36	1289.97	1288.76	1289.90	1287.65
25	1281.94	1267.44	1283.66	1268.83	1248.78	1238.49	1240.11	1282.40	1289.89	1288.54	1289.68	1287.10
26	1282.41	1266.99	1283.67	1267.56	1248.21	1237.73	1242.92	1283.49	1289.95	1288.75	1289.11	1286.50
27	1282.82	1266.62	1282.99	1266.45	1248.54	1237.11	1245.86	1284.42	1289.90	1289.06	1288.86	1286.45
28	1283.12	1266.18	1282.00	1265.36	1248.50	1236.71	1247.99	1285.88	1289.53	1288.69	1288.69	1286.60
29	1282.63	1265.73	1281.06	1263.92	1248.74	1236.41	1250.20	1287.34	1289.22	1288.61	1288.11	1285.96
30	1281.80	1265.38	1280.51	1262.34	---	1236.06	1252.69	1287.82	1289.28	1288.39	1287.97	1285.90
31	1281.47	---	1280.11	1261.61	---	1234.09	---	1288.42	---	1288.17	1288.27	---
MEAN	1281.67	1273.34	1275.53	1271.45	1253.85	1242.68	1232.15	1274.57	1289.73	1289.40	1288.10	1287.37
MAX	1283.65	1280.97	1283.67	1280.11	1262.24	1250.42	1252.69	1288.42	1290.08	1289.95	1289.90	1289.59
MIN	1279.17	1265.38	1264.87	1261.61	1248.21	1234.09	1224.62	1254.66	1288.65	1288.17	1286.81	1285.31
*	8,716,012	7,535,559	8,612,042	7,273,314	6,421,334	5,583,415	6,675,231	9,265,460	9,335,585	9,245,164	9,253,278	9,062,703
‡	-170,629	-1,180,453	+1,076,483	-1,338,728	-851,980	-837,919	+1,091,816	+2,590,229	+70,125	-90,421	+8,114	-190,575

CAL YR 1979........................‡ +308,725
WTR YR 1980........................‡ +176,062

* Total contents, in acre-feet, at end of month.
‡ Change in contents in acre-feet.

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA

LOCATION.--Lat 47°57'56", long 118°58'54", in SW¼SE¼ sec.36, T.29 N., R.30 E., Douglas County, Hydrologic Unit 17020005, in pier 3 on west side of bridge on State Highway 155, 3,200 ft (975 m) downstream from Grand Coulee Dam, 14.2 mi (22.8 km) upstream from Nespelem River, and at mile 596.3 (959.4 km).

DRAINAGE AREA.--74,700 mi^2 (193,500 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1913 to June 1923 (monthly discharge only), July to December 1923, January 1924 to May 1928 (monthly discharge only), June 1928 to current year. Published as "at Grand Coulee near Nespelem" prior to 1936 and as "at Grand Coulee" 1936-42.

REVISED RECORDS.--WSP 1286: 1942, 1947. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at 0.00 ft (0.000 m) Water and Power Resources Service datum, adjustment of 1937. June 27 to Dec. 31, 1923, June 12, 1928, to Mar. 31, 1931, nonrecording gage at site 0.5 mi (0.8 km) upstream at datum 2.4 ft (0.7 m) lower. Apr. 1, 1931, to Dec. 31, 1935, water-stage recorder at site 850 ft (259 m) downstream at present datum. Since June 12, 1955, auxiliary water-stage recorder 5.3 mi (8.5 km) downstream from base gage at datum 1.42 ft (0.433 m) lower.

REMARKS.--Water-discharge records good. Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversions by Feeder Canal for Columbia Basin project (see sta 12435500) for irrigation of about 380,000 acres (1,540 km^2) in the United States and an additional 35,000 acres (142 km^2) in Canada.

AVERAGE DISCHARGE.--67 years, 109,900 ft^3/s (3,112 m^3/s), 79,620,000 acre-ft/yr (98,200 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 637,000 ft^3/s (18,100 m^3/s) June 12, 1948, elevation, 987.90 ft (301.112 m); minimum, 14,900 ft^3/s (422 m^3/s) Dec. 17, 1956, elevation, 934.37 ft (284.796 m); minimum daily, 15,300 ft^3/s (433 m^3/s) Feb. 1, 1937.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a discharge of 725,000 ft^3/s (20,500 m^3/s), estimated.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 215,000 ft^3/s (6,090 m^3/s) May 30; maximum elevation, 965.46 ft (294.272 m) May 30; minimum discharge, 25,700 ft^3/s (728 m^3/s) April 24; minimum elevation, 947.63 ft (288.838 m) April 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89700	84100	108000	68000	99800	41700	87500	97000	160000	115000	105000	74400
2	85700	80800	67700	97400	88600	43200	86900	92700	146000	136000	101000	81200
3	83700	75500	110000	115000	70500	93000	83900	92500	121000	138000	70700	86900
4	76600	75500	98000	116000	95200	81600	75600	66600	117000	122000	86800	83700
5	73800	84600	95200	115000	111000	94000	71300	109000	155000	102000	93600	83300
6	59400	90200	81000	120000	111000	88400	69500	101000	148000	101000	87100	68000
7	52000	92300	84400	134000	107000	72800	98500	119000	152000	115000	89800	58000
8	77100	105000	78500	123000	96100	63400	88400	110000	148000	115000	90400	72900
9	83400	111000	74300	112000	84800	62600	84200	116000	151000	118000	92600	71400
10	83600	88400	119000	98400	90600	95300	66300	85000	147000	103000	64000	73200
11	83800	88100	131000	94800	111000	101000	63600	73000	140000	102000	91500	67000
12	97600	104000	103000	85200	117000	111000	53700	122000	140000	104000	104000	62500
13	76500	110000	99500	83100	121000	97900	44800	128000	141000	97000	96300	50700
14	52600	133000	83100	88500	131000	103000	80400	114000	141000	102000	103000	49100
15	87700	127000	94400	79100	127000	95500	69400	113000	142000	107500	105000	74100
16	101000	112000	92300	73200	120000	76700	61400	102000	178000	106000	103000	64700
17	99200	90800	92700	94800	95000	85700	68400	87300	165000	109000	74400	70700
18	102000	82300	81000	126000	85400	91500	56800	64500	174000	104000	89100	77500
19	101000	123000	71500	97900	87800	82300	47500	95000	179000	116000	81800	86300
20	76200	136000	87700	88900	86500	68800	44200	98100	164000	99900	90200	50000
21	55200	112000	93200	96200	76900	62900	47400	114000	157000	101000	92100	64400
22	83900	78900	92500	88700	78600	52300	46700	125000	152000	109000	85200	67700
23	84700	91300	92100	88500	81400	51600	36900	121000	151000	96900	82500	55700
24	86400	87200	68700	102000	60100	69900	56200	87200	153000	102000	75200	81200
25	70100	81200	50900	104000	91300	69600	68400	83400	147000	101000	111000	72700
26	68500	103000	72500	123000	87600	85800	46100	102000	126000	78600	91100	63900
27	49500	109000	101000	112000	63300	78600	42800	125000	130000	75700	100000	50200
28	50700	112000	114000	137000	72700	80000	85800	106000	142000	97500	92400	45900
29	83100	100000	104000	140000	71600	64400	91100	123000	136000	92900	96800	76100
30	82700	104000	86800	148000	---	66000	94700	168000	120000	92600	83600	63200
31	71000	---	84300	117000	---	86700	---	153000	---	99000	60100	---
TOTAL	2429200	2988200	2820300	3265900	2719800	2417200	2002400	3294100	4423000	3258100	2789300	2026600
MEAN	78360	99610	90980	105400	93790	77970	66750	106300	147400	105100	89980	67550
MAX	102000	136000	131000	148000	131000	111000	94700	168000	179000	138000	111000	86900
MIN	49500	75500	50900	68000	60100	41700	36900	64500	117000	75700	60100	44400
AC-FT	4818000	5927000	5594000	6478000	5395000	4795000	3972000	6534000	8773000	6462000	5533000	4020000

CAL YR 1979 TOTAL 34663200 MEAN 94970 MAX 153000 MIN 46400 AC-FT 68750000
WTR YR 1980 TOTAL 34434100 MEAN 94080 MAX 179000 MIN 36900 AC-FT 68300000

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-58, 1972, 1974 to June 1980 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1950 to September 1958.
pH: November 1950 to September 1953.
WATER TEMPERATURES: November 1950 to September 1958, July 1974 to September 1979.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)
OCT , 1979							
17...	1600	124000	145	7.6	10.0	8	2.0
NOV							
28...	1520	112000	140	7.6	9.0	4	4.0
DEC							
19...	1420	53200	160	8.0	7.6	13	2.0
JAN , 1980							
23...	1600	66900	152	8.2	3.7	8	1.0
FEB							
27...	1445	56400	160	7.7	3.0	8	2.0
MAR							
26...	1430	77000	165	8.0	4.0	8	2.0
APR							
16...	1445	51000	172	8.3	7.4	13	3.0
MAY							
14...	1425	126000	160	8.2	11.5	17	2.0
JUN							
18...	1435	134000	130	7.8	12.2	17	2.0

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT , 1979							
17...	8.5	.10	.060	.07	.020	.06	.040
NOV							
28...	9.7	.19	.040	--	.040	--	.030
DEC							
19...	11.3	.10	.000	.00	.030	.09	.000
JAN , 1980							
23...	13.0	.15	.010	.01	.030	.09	.010
FEB							
27...	13.3	.18	.070	.08	.040	.12	.010
MAR							
26...	12.9	.18	.080	.10	--	2.7	.050
APR							
16...	12.9	.22	.080	.10	.050	.15	.030
MAY							
14...	12.1	.05	.040	.05	.040	.12	.010
JUN							
18...	11.5	.03	.040	.05	.010	.03	.010

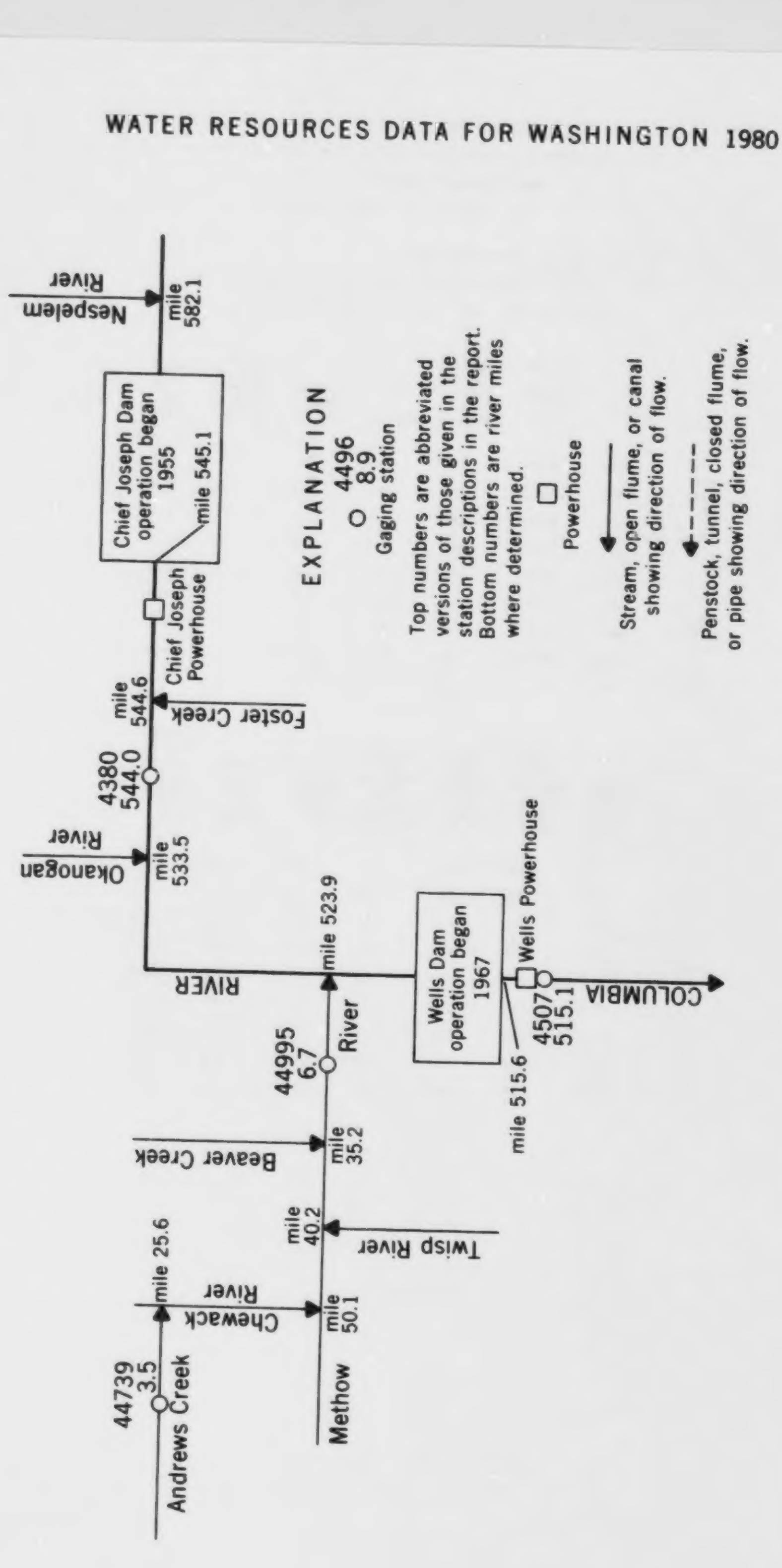
Nespelem River
mile 582.1
Chief Joseph Dam operation began 1955
mile 545.1
Chief Joseph Powerhouse
mile 544.6
Foster Creek
4380
544.0
Okanogan River
mile 533.5
RIVER
mile 523.9
Wells Dam operation began 1967
Wells Powerhouse
mile 515.6
4507
515.1
COLUMBIA
44995
6.7
River
Beaver Creek
mile 35.2
Twisp River
mile 40.2
Chewack River
mile 50.1
mile 25.6
Methow
44739
3.5
Andrews Creek
EXPLANATION
○ 4496
8.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
□ Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 10. Gaging stations in Columbia River basin from Chief Joseph to Wells Dam.

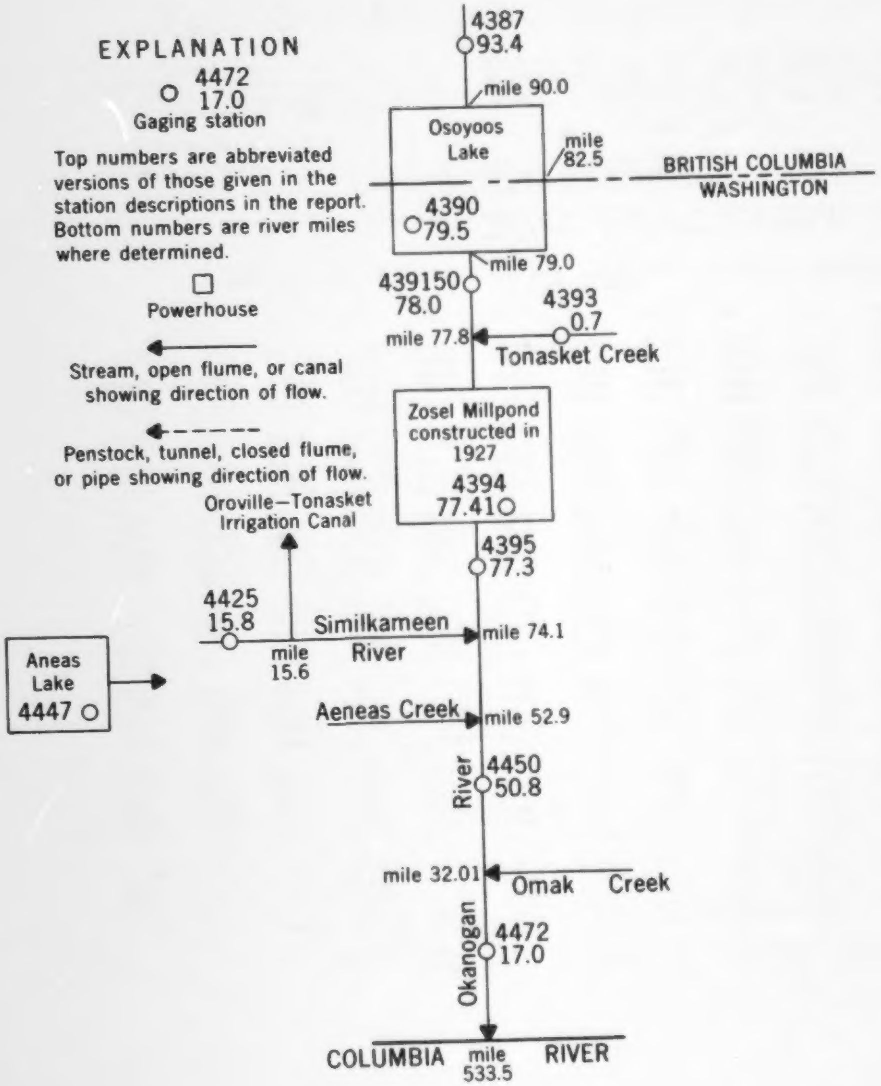
EXPLANATION
4472
17.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
4387
93.4
mile 90.0
Osoyoos Lake
mile 82.5
BRITISH COLUMBIA
WASHINGTON
4390
79.5
mile 79.0
439150
78.0
4393
0.7
mile 77.8
Tonasket Creek
Zosel Millpond constructed in 1927
4394
77.41
Oroville–Tonasket Irrigation Canal
4395
77.3
4425
15.8
Similkameen River
mile 15.6
mile 74.1
Aneas Lake
4447
Aeneas Creek
mile 52.9
4450
50.8
mile 32.01
Omak Creek
Okanogan River
4472
17.0
COLUMBIA RIVER
mile 533.5

Figure 11. Gaging stations in Okanogan River basin.

12438000 COLUMBIA RIVER AT BRIDGEPORT, WA

LOCATION.--Lat 48°00'24", long 119°39'51", in SW¼SW¼ sec.14, T.29 N., R.25 E., Douglas County, Hydrologic Unit 17020005, on left bank at Bridgeport, 1.0 mi (1.6 km) downstream from Foster Creek, 1.2 mi (1.9 km) downstream from Chief Joseph Dam, and at mile 544.0 (875.3 km).

DRAINAGE AREA.--75,700 mi^2 (196,100 km^2), approximately.

PERIOD OF RECORD.--April 1952 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Since May 26, 1967, auxiliary water-stage recorder 4,800 ft (1,460 m) upstream from base gage at same datum.

REMARKS.--Records good. Discharge for Jan. 7, 10, 11, and 22 was obtained from powerplant record supplied by the Corps of Engineers in Portland, Oregon. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km^2) in the United States and an additional 35,000 acres (142 km^2) in Canada.

AVERAGE DISCHARGE.--28 years, 112,900 ft^3/s (3,200 m^3/s), 81,800,000 acre-ft/yr (101,000 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 495,800 ft^3/s (14,000 m^3/s) June 11, 1961; maximum elevation, 792.20 ft (241.463 m) June 7, 1956; minimum observed discharge, 4,200 ft^3/s (120 m^3/s) Mar. 22, 1966, elevation, 746.91 ft (227.658 m); minimum daily discharge, 22,300 ft^3/s (632 m^3/s) Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 217,000 ft^3/s (6,150 m^3/s) June 1, elevation 784.77 ft (239.198 m); minimum daily discharge, 36,900 ft^3/s (1,050 m^3/s) Apr. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90000	98100	99800	64500	94000	47400	81600	98600	146000	110000	107000	72400
2	90800	81000	78600	91900	90600	54000	85600	90500	133000	127000	107000	86700
3	87400	77600	108000	99600	72400	96700	83000	89600	116000	127000	78700	86400
4	76500	69300	97800	112000	98000	89500	75900	74400	120000	115000	91900	92100
5	76900	91800	92600	108000	105000	97000	72600	104000	136000	111000	97500	83500
6	54300	92600	76800	114000	114000	93200	68900	101000	134000	103000	92100	69400
7	54100	90500	81100	138000	102000	84200	92100	109000	142000	112000	92000	58300
8	75600	104000	73400	120000	95000	71700	82100	113000	144000	103000	95800	74000
9	82400	111000	76100	99800	91300	63400	81100	103000	141000	115000	93700	65000
10	84600	94000	110000	98300	87400	96900	63400	85700	135000	113000	67600	71100
11	84600	84500	124000	92300	115000	103000	69100	74100	141000	110000	98900	66600
12	96000	101000	100000	77200	112000	107000	52800	109000	130000	106000	106000	61400
13	88700	101000	89100	72700	114000	98600	42300	116000	128000	96400	99800	46200
14	56800	110000	94700	86200	131000	105000	84900	116000	138000	113000	106000	37800
15	93000	119000	95500	72600	122000	99300	71000	108000	132000	114000	105000	72600
16	98900	99000	83100	77000	106000	83000	61200	102000	151000	109000	103000	73700
17	102000	94400	92000	91300	94500	93100	73200	86700	161000	114000	73100	72900
18	106000	79800	76400	117000	92600	97900	55400	71000	154000	108000	91000	71800
19	95700	119000	70000	89900	93900	86000	40500	97000	156000	113000	89500	85800
20	79400	116000	86000	78200	89900	72600	36900	99300	153000	106000	93900	38000
21	51600	108000	88100	92200	87600	65500	49500	113000	147000	114000	93200	39200
22	86100	80400	89000	90100	79800	55700	42900	124000	142000	110000	92300	65500
23	69100	88300	80500	83000	79700	52200	38400	112000	142000	98400	85400	53700
24	84500	89100	71100	96000	61200	66700	63000	96400	138000	104000	81000	76600
25	68800	79200	42900	100000	94700	69200	71600	80300	140000	109000	109000	73700
26	72200	101000	68900	116000	91600	83800	41900	95900	135000	80900	94500	62200
27	52100	107000	93200	102000	71000	78400	42300	115000	120000	75700	103000	42500
28	50200	105000	108000	119000	80300	76500	89100	121000	133000	106000	88300	42300
29	82200	100000	97600	121000	75000	61000	96800	111000	122000	96600	95600	80400
30	79700	102000	83400	136000	---	61300	93800	138000	111000	96900	84300	65300
31	102000	---	79900	109000	---	88000	---	150000	---	99600	62200	---
TOTAL	2464200	2893600	2715600	3064800	2741500	2497800	2002900	3204500	4121000	3316500	2878300	1987100
MEAN	79490	96450	87600	98860	94530	80570	66760	103400	137400	107000	92850	66240
MAX	106000	119000	124000	138000	131000	107000	96800	150000	161000	127000	109000	92100
MIN	50200	69300	42900	64500	61200	47400	36900	71000	111000	75700	62200	37800
AC-FT	4888000	5739000	5386000	6079000	5438000	4954000	3973000	6356000	8174000	6578000	5709000	3941000

CAL YR 1979 TOTAL 34316100 MEAN 94020 MAX 156000 MIN 42900 AC-FT 68070000
WTR YR 1980 TOTAL 33887800 MEAN 92590 MAX 161000 MIN 36900 AC-FT 67220000

12438700 OKANAGAN RIVER NEAR OLIVER, BRITISH COLUMBIA
(International gaging station)

LOCATION.--Lat 49°06'53", long 119°33'50", approximately 75 ft (23 m) upstream from drop structure No. 3, 0.8 mi (1.3 km) downstream from Testalinden Creek, 4.2 mi (6.8 km) south of Oliver, and at mile 93.4 (150.3 km).

DRAINAGE AREA.--2,930 mi^2 (7,590 km^2).

PERIOD OF RECORD.--October 1961 to current year in reports of Geological Survey. March 1944 to December 1948 and April 1952 to September 1961 in reports of Department of Northern Affairs and National Resources, Canada.

GAGE.--Water-stage recorder.

REMARKS.--Records good. Regulation by control dams at outlets of Okanagan and Skaha Lakes. Diversion for irrigation.

COOPERATION.--This station is maintained by Canada under agreement with the United States subsequent to Feb. 14, 1965.

AVERAGE DISCHARGE.--30 years (water years 1945-47, 1953-56, 1958-80), 597 ft^3/s (16.91 m^3/s), 432,500 acre-ft/yr (533 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,130 ft^3/s (88.6 m^3/s) May 27, 1974, gage height, 7.07 ft (2.155 m); minimum, 55.9 ft^3/s (1.58 m^3/s) Jan. 30, 1963, gage height, 0.63 ft (0.192 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,020 ft^3/s (28.9 m^3/s) June 16, gage height, 3.89 ft (1.186 m); minimum daily, 134 ft^3/s (3.79 m^3/s) Jan. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	339	324	182	171	178	186	166	382	379	585	579	550
2	367	273	185	170	177	184	166	442	382	567	561	563
3	395	240	193	170	177	185	167	425	412	560	567	561
4	407	238	173	169	175	179	166	381	392	558	569	571
5	433	209	183	174	177	184	170	360	394	570	529	597
6	452	159	184	134	180	178	171	439	412	572	387	591
7	444	199	185	172	179	179	169	482	422	563	342	576
8	439	199	186	175	178	180	178	609	398	706	299	565
9	438	198	194	174	179	178	244	683	471	651	286	568
10	425	201	185	172	178	177	253	757	590	699	274	572
11	379	206	197	173	176	177	250	701	524	721	277	574
12	434	198	185	177	177	172	246	787	550	787	263	566
13	583	193	185	178	173	175	250	722	724	768	231	603
14	629	188	183	176	172	175	256	676	840	746	222	643
15	586	187	164	174	173	174	262	736	867	733	209	634
16	480	195	171	175	175	176	271	799	945	700	205	601
17	466	201	188	177	174	179	288	725	848	678	227	462
18	441	198	190	174	172	177	289	650	835	666	300	422
19	445	188	168	177	174	173	308	574	815	664	461	417
20	448	188	169	177	186	172	388	516	764	652	503	416
21	434	189	170	175	185	174	417	499	753	657	517	416
22	431	191	175	179	182	177	405	439	751	647	528	416
23	427	196	172	183	183	174	430	411	808	635	536	414
24	413	186	167	184	181	159	445	400	756	639	550	409
25	427	186	168	186	180	163	409	411	725	651	555	403
26	431	185	168	184	180	163	368	472	736	647	514	404
27	410	187	175	183	181	168	395	572	684	634	502	411
28	410	191	173	182	184	167	445	560	646	627	524	413
29	388	188	169	181	185	170	511	499	620	615	533	406
30	357	180	171	180	---	169	419	466	608	608	526	406
31	330	---	172	179	---	168	---	382	---	605	526	---
TOTAL	13488	6061	5530	5435	5171	5412	8902	16877	19051	20111	13102	15150
MEAN	435	202	178	175	178	175	297	544	635	649	423	505
MAX	629	324	197	186	186	186	511	799	945	787	579	643
MIN	330	159	164	134	172	159	166	360	379	558	205	403
AC-FT	26750	12020	10970	10780	10260	10730	17660	33480	37790	39890	25990	30050

CAL YR 1979 TOTAL 117,690 MEAN 322 MAX 768 MIN 159 AC-FT 233,400
WTR YR 1980 TOTAL 134,290 MEAN 367 MAX 945 MIN 134 AC-FT 266,400

12439000 OSOYOOS LAKE NEAR OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°57'24", long 119°26'18", in NW¼NE¼ sec.21, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on west shore 1 mi (1.6 km) north of Oroville, 3 mi (4.8 km) south of international boundary, and at mile 79.5 (127.9 km).

DRAINAGE AREA.--3,132 mi^2 (8,112 km^2).

PERIOD OF RECORD.--July 1928 to current year.

REVISED RECORDS.--WSP 1346: Drainage area. WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept.2, 1928, nonrecording gage and Sept. 2, 1928, to Nov. 9, 1929, water-stage recorder, 100 ft (30 m) south of international boundary, Nov. 10, 1929, to Sept. 7, 1930, Mar. 22, 1952, to Sept. 23, 1953, June 25, 1955, to Apr. 11, 1956, nonrecording gage and Sept. 8, 1930, to Mar. 21, 1952, Sept. 24, 1953, to June 24, 1955, Apr. 12, 1956, to Feb. 7, 1969, water-stage recorder at site 1 mi (1.6 km) south of international boundary. All elevations prior to Oct. 1, 1944, at datum 2.39 ft (0.728) lower. To convert from present datum to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert from present datum to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

REMARKS.--Approximately 44,000 acres (1,780 hm^2) are irrigated above station in Canada. Elevation may occasionally be affected by dam at Zosel's mill in Oroville.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 917.11 ft (279.535 m) June 2, 3, 1972; minimum 908.82 ft (277.008 m), present datum, Oct. 14, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1894, reached an elevation of 918.8 ft ±0.5 ft (280.05 m ±0.15 m), present datum, 1 mi (1.6 km) below present lake outlet, from floodmark on old Okanogan Hotel Building, pointed out in 1930 by Mr. and Mrs. Stansbury, who kept a diary and operated the hotel in 1894.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 912.37 ft (278.090 m) July 14; minimum, 909.68 ft (277.270 m) Feb. 2.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	911.00	910.99	909.95	909.83	909.74	909.98	909.92	910.97	911.16	912.08	911.59	911.18
2	911.01	910.93	909.96	909.82	909.74	909.99	909.91	910.97	911.14	912.05	911.55	911.25
3	911.01	910.88	909.95	909.82	909.75	910.00	909.90	910.95	911.12	912.06	911.50	911.26
4	911.03	910.81	909.97	909.83	909.74	910.00	909.90	910.93	911.13	912.05	911.45	911.29
5	911.07	910.75	909.97	909.84	909.74	909.99	909.94	910.90	911.14	912.07	911.45	911.32
6	911.10	910.67	909.96	909.84	909.75	909.99	909.97	910.93	911.14	912.07	911.43	911.35
7	911.14	910.57	909.95	909.86	909.75	909.98	909.98	910.94	911.16	912.08	911.38	911.37
8	911.17	910.50	909.94	909.85	909.75	909.98	909.98	910.86	911.17	912.09	911.32	911.35
9	911.16	910.42	909.95	909.84	909.75	909.98	910.03	910.84	911.21	912.12	911.26	911.35
10	911.18	910.35	909.95	909.84	909.74	909.98	910.08	910.88	911.30	912.16	911.21	911.36
11	911.20	910.29	909.92	909.83	909.74	909.97	910.12	910.90	911.37	912.21	911.16	911.36
12	911.20	910.24	909.92	909.85	909.74	909.97	910.14	910.92	911.38	912.27	911.08	911.37
13	911.24	910.19	909.90	909.84	909.73	909.98	910.19	910.95	911.40	912.31	911.00	911.44
14	911.31	910.17	909.91	909.85	909.73	909.98	910.22	910.97	911.54	912.35	910.93	911.47
15	911.39	910.15	909.95	909.84	909.73	909.98	910.28	911.05	911.63	912.34	910.87	911.50
16	911.41	910.13	909.92	909.84	909.73	909.97	910.32	911.15	911.74	912.33	910.76	911.51
17	911.38	910.12	909.88	909.85	909.74	909.96	910.36	911.21	911.83	912.30	910.69	911.50
18	911.35	910.12	909.89	909.84	909.75	909.96	910.42	911.22	911.87	912.24	910.66	911.45
19	911.35	910.10	909.90	909.83	909.76	909.96	910.48	911.20	911.88	912.19	910.62	911.37
20	911.33	910.08	909.89	909.82	909.81	909.96	910.57	911.16	911.88	912.13	910.66	911.32
21	911.29	910.06	909.91	909.82	909.85	909.96	910.68	911.12	911.89	912.09	910.69	911.27
22	911.26	910.04	909.91	909.81	909.85	909.95	910.71	911.10	911.93	912.04	910.73	911.23
23	911.24	910.05	909.89	909.80	909.85	909.95	910.74	911.04	911.99	911.99	910.78	911.20
24	911.22	910.05	909.88	909.80	909.85	909.94	910.82	910.98	912.03	911.92	910.85	911.17
25	911.21	910.04	909.88	909.80	909.85	909.94	910.88	910.95	912.07	911.87	910.88	911.14
26	911.19	910.02	909.87	909.79	909.85	909.93	910.91	910.92	912.11	911.84	910.93	911.13
27	911.18	910.00	909.86	909.77	909.88	909.93	910.92	910.95	912.13	911.80	910.97	911.12
28	911.16	909.98	909.85	909.77	909.93	909.92	910.93	911.06	912.13	911.77	911.02	911.10
29	911.13	909.96	909.85	909.76	909.97	909.92	911.01	911.14	912.15	911.73	911.05	911.09
30	911.10	909.95	909.84	909.75	---	909.93	911.01	911.17	912.12	911.67	911.09	911.08
31	911.05	---	909.83	909.74	---	909.92	---	911.17	---	911.63	911.15	---
MEAN	911.20	910.29	909.91	909.82	909.79	909.96	910.38	911.02	911.62	912.06	911.06	911.30
MAX	911.41	910.99	909.97	909.86	909.97	910.00	911.01	911.22	912.15	912.35	911.59	911.51
MIN	911.00	909.95	909.83	909.74	909.73	909.92	909.90	910.84	911.12	911.63	910.62	911.08

CAL YR 1979 MEAN 910.58 MAX 911.51 MIN 909.46
WTR YR 1980 MEAN 910.70 MAX 912.35 MIN 909.73

12439150 OKANOGAN RIVER AT BRIDGE STREET, AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°56'20", long 119°25'36", in SW¼NW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 15 ft (5 m) upstream from Cherry Street bridge in Oroville, 700 ft (213 m) upstream from Tonasket Creek, 1.0 mi (1.6 km) downstream from Osoyoos Lake, and at mile 78.0 (125.5 km).

DRAINAGE AREA.--3,133 mi^2 (8,114 km^2).

WATER-ELEVATION RECORDS

PERIOD OF RECORD.--October 1942 to September 1964 (annual maximum and minimum gage heights only published in WSP 1933), October 1964 to current year (gage heights only). April 1939 to November 1944 (fragmentary) and December 1944 to September 1964 gage heights available in file of district office.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Nov. 14, 1944, nonrecording gage and Nov. 15, 1944, to Sept. 30, 1945, water-stage recorder at present site at datum 897.61 ft (273.592 m) higher and Oct. 1, 1945, to Sept. 30, 1975, at datum 900.00 ft (274.320 m) higher. To convert to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation recorded, 916.99 ft (279.499 m) June 2, 1972; minimum recorded, 907.30 ft (276.545 m) Mar. 3, 4, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 912.22 ft (278.045 m) July 13, 14, 15 minimum, 908.36 ft (276.868 m), Jan. 7.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	910.92	910.87	909.88	909.76	909.63	909.89	909.86	910.87	911.06	911.97	911.40	911.05
2	910.95	910.79	909.90	909.74	909.63	909.90	909.83	910.88	911.03	911.94	911.35	911.12
3	910.94	910.75	909.89	909.75	909.64	909.92	909.82	910.85	911.01	911.95	911.29	911.10
4	910.96	910.69	909.90	909.74	909.65	909.96	909.84	910.83	911.02	911.94	911.27	911.13
5	911.00	910.62	909.90	909.78	909.65	909.94	909.88	910.80	911.05	911.97	911.32	911.17
6	911.03	910.53	909.90	909.49	909.65	909.90	909.90	910.85	911.04	911.97	911.31	911.17
7	911.07	910.44	909.89	908.84	909.65	909.89	909.91	910.75	911.07	911.97	911.26	911.23
8	911.12	910.36	909.88	909.72	909.65	909.89	909.91	910.58	911.07	911.97	911.20	911.20
9	911.09	910.27	909.86	909.72	909.65	909.89	909.98	910.61	911.12	912.01	911.14	911.19
10	911.11	910.21	909.93	909.72	909.65	909.88	910.03	910.67	911.20	912.05	911.07	911.19
11	911.12	910.13	909.84	909.72	909.65	909.89	910.06	910.67	911.27	912.09	911.03	911.21
12	911.12	910.09	909.85	909.73	909.65	909.87	910.07	910.71	911.28	912.14	910.95	911.22
13	911.15	910.08	909.83	909.76	909.64	909.86	910.13	910.75	911.27	912.18	910.86	911.29
14	911.23	910.08	909.88	909.76	909.64	909.89	910.17	910.77	911.42	912.22	910.78	911.32
15	911.30	910.06	910.03	909.75	909.62	909.89	910.24	910.85	911.50	912.19	910.72	911.33
16	911.29	910.03	909.80	909.76	909.63	909.86	910.26	910.96	911.60	912.19	910.60	911.33
17	911.26	910.04	909.81	909.78	909.64	909.86	910.30	911.01	911.67	912.14	910.53	911.32
18	911.23	910.04	909.82	909.77	909.65	909.87	910.37	911.01	911.71	912.08	910.52	911.27
19	911.22	910.02	909.83	909.75	909.65	909.86	910.42	911.01	911.71	912.02	910.44	911.18
20	911.21	910.00	909.82	909.74	909.72	909.86	910.53	910.96	911.71	911.96	910.50	911.13
21	911.16	909.97	909.84	909.73	909.76	909.90	910.64	910.95	911.75	911.91	910.54	911.08
22	911.14	909.96	909.84	909.72	909.76	909.87	910.63	910.96	911.80	911.85	910.59	911.05
23	911.12	909.96	909.82	909.71	909.76	909.89	910.67	910.91	911.86	911.81	910.65	911.04
24	911.10	909.97	909.81	909.72	909.76	909.87	910.77	910.85	911.90	911.74	910.75	911.01
25	911.08	909.95	909.81	909.71	909.76	909.85	910.81	910.84	911.94	911.70	910.76	911.00
26	911.06	909.92	909.79	909.70	909.76	909.84	910.84	910.79	911.98	911.66	910.80	910.99
27	911.05	909.92	909.79	909.69	909.80	909.85	910.83	910.84	912.00	911.63	910.86	910.97
28	911.03	909.92	909.77	909.68	909.88	909.82	910.86	910.98	912.01	911.58	910.89	910.96
29	911.01	909.89	909.77	909.67	909.89	909.85	910.93	911.04	912.05	911.55	910.91	910.93
30	910.98	909.89	909.76	909.64	---	909.86	910.91	911.07	912.01	911.48	910.97	910.94
31	910.93	---	909.75	909.62	---	909.85	---	911.06	---	911.44	911.02	---
MEAN	911.10	910.18	909.84	909.69	909.69	909.88	910.31	910.86	911.50	911.91	910.91	911.14
MAX	911.30	910.87	910.03	909.78	909.89	909.96	910.93	911.07	912.05	912.22	911.40	911.33
MIN	910.92	909.89	909.75	908.84	909.62	909.82	909.82	910.58	911.01	911.44	910.44	910.93

CAL YR 1979 MEAN 910.46 MAX 911.45 MIN 909.05
WTR YR 1980 MEAN 910.59 MAX 912.22 MIN 908.84

12439150 OKANOGAN RIVER AT BRIDGE STREET AT OROVILLE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-1970, 1975 to June 1980 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1959 to September 1960.
pH: July 1959 to September 1960.
WATER TEMPERATURE: July 1959 to September 1960.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is good. Records collected at same site prior to October 1970 was published as 12439500 "Okanogan River at Oroville."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
OCT , 1979 17...	1230	562	220	8.3	15.5	4	1.0	9.0	.01	.020	.03
NOV 28...	1215	246	290	7.9	5.0	8	3.0	11.8	.02	.060	.08
DEC 19...	1140	229	285	8.3	2.3	17	2.0	13.0	.05	.010	.06
JAN , 1980 23...	1320	228	295	8.3	.9	13	3.0	14.4	.08	.000	.08
FEB 27...	1135	219	295	8.3	3.8	8	3.0	15.3	.06	.010	.07
MAR 26...	1115	210	226	8.4	5.7	8	2.0	13.1	.03	.010	.04
APR 16...	1045	165	310	8.8	9.3	13	5.0	12.7	.05	.000	.05
MAY 14...	1015	686	290	8.9	15.5	13	2.0	10.0	.00	.000	.00
JUN 18...	1105	462	280	8.8	19.4	17	4.0	9.9	.01	.010	.02

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
OCT , 1979 17...	.010	.01	.75	.76	.79	3.4	.030	.09	.050	.15
NOV 28...	.060	.07	.91	.97	1.0	4.6	.010	.03	.000	.00
DEC 19...	.000	.00	1.3	1.30	1.3	6.0	.020	.06	.000	.00
JAN , 1980 23...	.010	.01	.79	.80	.88	3.8	.010	.03	.010	.03
FEB 27...	.060	.07	.14	.20	.27	1.1	.020	.06	.000	.00
MAR 26...	.060	.07	.68	.74	.78	3.4	.030	.09	.010	.03
APR 16...	.040	.05	1.0	1.10	1.1	5.0	.020	.06	.000	.00
MAY 14...	.040	.05	.53	.57	.57	2.5	.020	.06	.010	.03
JUN 18...	.030	.04	.63	.66	.68	3.0	.010	.03	.040	.12

OKANOGAN RIVER BASIN

12439300 TONASKET CREEK AT OROVILLE, WA

LOCATION.--Lat 48°56'35", long 119°24'45", in NW¼NE¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank 7 ft (2.1 m) downstream from road bridge, 1.0 mi (1.6 km) northeast of Oroville, and 0.7 mi (1.1 km) above mouth.

DRAINAGE AREA.--60.1 mi^2 (155.7 km^2).

PERIOD OF RECORD.--March 1967 to current year.

REVISED RECORDS.--WRD Wash. 1973: 1972(M).

GAGE.--Water-stage recorder and artificial control. Artificial control removed Aug. 27. Altitude of gage is 960 ft (293 m), from topographic map.

REMARKS.--Records poor. Two small diversions for irrigation of 45 acres (182,000 m^2) above station.

AVERAGE DISCHARGE.--13 years, 2.56 ft^3/s (0.0725 m^3/s) 0.58 in/yr (15 mm/yr), 1,850 acre-ft/yr (2.28 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 455 ft^3/s (12.9 m^3/s) Feb. 27, 1973, gage height, 5.47 ft (1.667 m), from rating curve extended above 50 ft^3/s (1.42 m^3/s) on basis of slope-area measurement of peak flow; no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Peak of Apr. 12, 1950 was 484 ft^3/s (13.7 m^3/s) at site 0.5 mi (0.8 km) upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 30 ft^3/s (0.850 m^3/s) and maximum (*) from outside high water mark:

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
March 3	unknown	*155	4.39	*4.74	1.445
May 15	1930	31	0.878	3.89	1.186

Minimum discharge, no flow many days during winter months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.84	.14	.04	.00	.00	10	2.2	7.4	7.1	1.9	1.4	1.1
2	1.4	.15	.04	.02	.00	20	3.2	7.6	8.4	1.8	.98	1.6
3	1.6	.15	.04	.01	.01	70	4.1	7.6	8.6	1.8	.56	1.6
4	1.5	.15	.10	.02	.02	20	4.9	7.3	7.7	2.0	.76	1.5
5	1.6	.15	.00	.03	.03	9.0	5.6	7.8	7.6	2.3	.68	2.1
6	1.4	.15	.00	.00	.05	6.5	6.8	9.2	7.8	2.2	.54	1.4
7	1.3	.15	.00	.00	.05	5.0	7.0	8.2	7.7	1.7	.61	1.2
8	1.4	.18	.02	.00	.06	3.8	7.6	7.2	6.9	1.2	.61	1.2
9	2.3	.15	.04	.00	.06	3.2	7.8	11	11	1.1	.54	1.2
10	3.1	.16	.01	.00	.06	3.0	7.8	11	10	1.8	.42	1.1
11	3.0	.16	.05	.00	.07	3.0	7.8	8.0	8.9	2.3	.48	2.1
12	3.1	.15	.07	.05	.07	2.5	7.8	10	8.0	3.2	.54	4.7
13	2.8	.18	.15	.04	.04	3.0	8.1	14	7.8	3.3	.48	3.8
14	2.6	.20	.06	.03	.02	1.5	8.2	11	7.3	3.8	.54	3.1
15	2.8	.16	.58	.02	.02	1.0	8.3	18	6.1	2.0	.42	3.1
16	2.6	.18	.20	.03	.03	.60	8.2	11	5.6	1.1	.48	3.5
17	1.8	.20	.05	.04	.05	.20	8.2	11	5.1	1.0	.61	3.5
18	1.4	.20	.04	.00	.10	.01	8.3	9.9	4.8	.86	.54	3.0
19	1.4	.18	.04	.00	.20	.10	8.3	9.6	4.3	.71	.42	2.8
20	.83	.20	.04	.00	.30	1.2	8.2	8.9	3.9	.66	.36	3.3
21	.16	.15	.07	.00	.20	.70	8.2	8.7	3.7	.57	.36	4.0
22	.12	.18	.00	.00	.15	.50	8.2	8.3	3.5	.70	.42	4.5
23	.08	.17	.03	.00	.15	.15	8.2	6.9	3.3	.62	.36	4.6
24	.10	.15	.05	.00	.15	.30	8.2	6.4	3.2	.50	.36	2.3
25	.19	.13	.00	.00	.20	.65	8.1	6.3	3.1	.44	.42	.42
26	.12	.09	.00	.00	.25	.70	8.1	7.7	3.7	.92	.42	.30
27	.20	.06	.00	.00	1.5	.60	7.8	9.6	3.8	1.6	.30	.25
28	.14	.04	.00	.00	7.0	.76	7.8	8.1	2.8	1.9	.42	.84
29	.10	.03	.00	.00	8.0	.76	7.8	7.5	2.4	1.5	.36	2.1
30	.10	.04	.00	.00	---	.76	7.4	7.7	2.1	1.5	.68	1.8
31	.10	---	.00	.00	---	1.5	---	7.7	---	.90	1.1	---
TOTAL	40.18	4.38	1.72	.29	18.84	170.99	218.2	280.6	176.2	47.08	17.17	68.01
MEAN	1.30	.15	.055	.009	.65	5.52	7.27	9.05	5.87	1.52	.55	2.27
MAX	3.1	.20	.58	.05	8.0	70	8.3	18	11	3.3	1.4	4.7
MIN	.08	.03	.00	.00	.00	.01	2.2	6.3	2.1	.44	.30	.25
CFSM	.02	.002	.001	.000	.01	.09	.12	.15	.10	.03	.009	.04
IN.	.02	.00	.00	.00	.01	.11	.14	.17	.11	.03	.01	.04
AC-FT	80	8.7	3.4	.6	37	339	433	557	349	93	34	135

CAL YR 1979 TOTAL 392.36 MEAN 1.07 MAX 5.7 MIN .00 CFSM .02 IN .24 AC-FT 778
WTR YR 1980 TOTAL 1043.66 MEAN 2.85 MAX 70 MIN .00 CFSM .05 IN .65 AC-FT 2070

NOTE:--No gage-height readings Jan. 5 to May 5, June 15 to June 30.

12439400 OKANOGAN RIVER AT ZOSEL MILLPOND, AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°55'55", long 119°25'05", in SE¼SW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 0.4 mi (0.6 km) downstream from Tonasket Creek, 1.6 mi (2.6 km) downstream from Osoyoos Lake and at mile 77.41 (124.55 km).

DRAINAGE AREA.--3,195 mi^2 (8,275 km^2).

PERIOD OF RECORD.--October 1942 to September 1964 (annual maximum and minimum gage heights only, published in WSP 1933), October 1964 to current year (gage heights only). April 1939 to March 1944 (fragmentary) and April 1944 to September 1964 gage heights available in file of district office.

REVISED RECORDS.--WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 27, 1944, nonrecording gage and Mar. 28, 1944, to Sept. 30, 1945, water-stage recorder at present site at datum 897.61 ft (273.592 m) higher and Oct. 1, 1945, to Sept. 30, 1975, at datum 900.00 ft (274.320 m) higher. To convert to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD.--Maximum elevation recorded, 916.91 ft (279.474 m) June 2, 1972; minimum recorded, 905.90 ft (276.118 m) Jan. 3, 1959, but may have been lower during period of no gage-height record Mar. 3 or 4, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 911.06 ft (277.691 m) Oct. 15, 16; minimum, 906.69 ft (276.359 m) Jan. 7.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	910.75	910.48	909.71	909.64	909.52	909.83	909.82	910.78	910.86	910.72	910.54	910.82
2	910.77	910.39	909.73	909.63	909.52	909.85	909.78	910.80	910.81	910.79	910.52	910.83
3	910.76	910.34	909.73	909.63	909.54	909.86	909.77	910.77	910.76	910.87	910.48	910.79
4	910.79	910.26	909.75	909.63	909.55	909.91	909.81	910.75	910.75	910.82	910.61	910.83
5	910.83	910.18	909.75	909.68	909.55	909.88	909.85	910.73	910.74	910.86	910.87	910.87
6	910.86	910.08	909.75	909.24	909.55	909.84	909.88	910.79	910.73	910.85	910.93	910.84
7	910.89	909.96	909.74	907.75	909.56	909.83	909.89	910.54	910.73	910.83	910.88	910.86
8	910.93	909.86	909.73	909.53	909.55	909.83	909.88	910.25	910.68	910.73	910.83	910.83
9	910.89	909.75	909.71	909.55	909.56	909.83	909.96	910.35	910.73	910.78	910.76	910.82
10	910.89	909.67	909.76	909.55	909.56	909.82	910.01	910.42	910.83	910.84	910.69	910.84
11	910.90	909.57	909.70	909.55	909.56	909.83	910.04	910.42	910.87	910.88	910.65	910.85
12	910.90	909.51	909.72	909.55	909.56	909.80	910.04	910.49	910.79	910.87	910.57	910.87
13	910.92	909.68	909.70	909.60	909.56	909.79	910.10	910.55	910.71	910.91	910.45	910.95
14	910.99	909.82	909.76	909.62	909.56	909.83	910.14	910.56	910.91	910.93	910.37	910.98
15	911.04	909.80	909.98	909.62	909.52	909.82	910.22	910.64	910.89	910.85	910.31	910.98
16	910.96	909.77	909.62	909.63	909.54	909.80	910.24	910.72	910.88	910.85	910.17	910.97
17	910.87	909.82	909.68	909.66	909.55	909.79	910.28	910.77	910.79	910.63	910.07	910.96
18	910.84	909.85	909.71	909.67	909.56	909.80	910.35	910.76	910.72	910.51	910.06	910.91
19	910.85	909.83	909.71	909.66	909.57	909.79	910.41	910.75	910.66	910.48	910.00	910.81
20	910.83	909.82	909.71	909.63	909.65	909.80	910.52	910.69	910.64	910.44	910.08	910.77
21	910.78	909.79	909.73	909.63	909.69	909.85	910.60	910.70	910.78	910.41	910.18	910.70
22	910.76	909.77	909.73	909.62	909.69	909.82	910.58	910.77	910.84	910.38	910.28	910.71
23	910.74	909.78	909.71	909.61	909.69	909.85	910.63	910.72	910.87	910.38	910.35	910.73
24	910.72	909.79	909.70	909.63	909.69	909.81	910.75	910.66	910.89	910.47	910.46	910.71
25	910.70	909.78	909.70	909.62	909.69	909.79	910.79	910.65	910.85	910.52	910.48	910.73
26	910.68	909.75	909.68	909.60	909.69	909.79	910.79	910.58	910.82	910.52	910.54	910.76
27	910.67	909.74	909.68	909.59	909.76	909.80	910.77	910.70	910.80	910.57	910.60	910.74
28	910.66	909.75	909.65	909.58	909.84	909.76	910.80	910.87	910.84	910.56	910.65	910.73
29	910.63	909.71	909.66	909.56	909.83	909.79	910.87	910.89	910.85	910.57	910.67	910.71
30	910.60	909.71	909.64	909.53	---	909.82	910.83	910.89	910.71	910.55	910.74	910.73
31	910.55	---	909.64	909.51	---	909.81	---	910.87	---	910.55	910.79	---
MEAN	910.80	909.87	909.72	909.53	909.61	909.82	910.28	910.67	910.79	910.67	910.50	910.82
MAX	911.04	910.48	909.98	909.68	909.84	909.91	910.87	910.89	910.91	910.93	910.93	910.98
MIN	910.55	909.51	909.62	907.75	909.52	909.76	909.77	910.25	910.64	910.38	910.00	910.70

CAL YR 1979 MEAN 910.29 MAX 911.43 MIN 908.12
WTR YR 1980 MEAN 910.26 MAX 911.04 MIN 907.75

12439500 OKANOGAN RIVER AT OROVILLE, WA
(International gaging station

LOCATION.--Lat 48°55'51", long 119°25'09", in SE¼SW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 20 ft (6 m) downstream from Burlington Northern trestle, 0.5 mi (0.8 km) downstream from Tonasket Creek, 1.7 mi (2.7 km) downstream from Osoyoos Lake, 3.2 mi (5.1 km) upstream from Similkameen River, and at mile 77.3 (124.4 km).

DRAINAGE AREA.--3,195 mi^2 (8,275 km^2).

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 900.00 ft (274.320 m), National Geodetic Vertical Datum of 1929. Prior to Oct. 26, 1944, nonrecording gage at Zosel milldam 200 ft (61 m) upstream at same datum. Oct. 26, 1944, to Mar. 6, 1948, water-stage recorder on railroad trestle 20 ft (6 m) upstream at same datum. Auxiliary water-stage recorder 0.5 mi (0.8 km) downstream used during high-water periods since Apr. 10, 1948. May 15, 1946, to Apr. 9, 1948, auxiliary nonrecording gage at same site and datum. To convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.074 m).

REMARKS.--Records excellent. Diversions made to irrigate approximately 44,000 acres (17,800 hm^2) in Canada and minor diversions in the United States above station. Natural regulation in several large lakes and artificial regulation in Okanagan Lake 46.7 mi (75.1 km) upstream for flood control and irrigation; also regulated by Zosel milldam at Oroville, 200 ft (61 m) above gage.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--38 years, 657 ft^3/s (18.61 m^3/s), 476,000 acre-ft/yr (587 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,730 ft^3/s (106 m^3/s) June 14, 1972; maximum gage height, 16.89 ft (5.148 m) June 2, 1972 (backwater from Similkameen River); minimum daily discharge, 2,270 ft^3/s (64.3 m^3/s) reverse flow May 29, 1948; minimum gage height, 3.98 ft (1.213 m) Mar. 1, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 899 ft^3/s (25.5 m^3/s) May 7, gage height, 9.59 ft (2.923 m) (backwater from Similkameen River); minimum discharge, 0.5 ft^3/s (0.014 m^3/s) Jan. 6, minimum gage height, 5.26 ft (1.603 m) Dec. 15, Jan. 6 (due to ice jam at Zosel Dam).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	325	495	242	222	228	219	183	463	454	603	640	384
2	325	485	246	222	228	224	192	445	446	552	636	444
3	325	480	246	223	228	224	170	440	452	534	630	466
4	328	470	242	223	224	224	140	432	431	538	580	473
5	334	460	242	226	219	224	140	416	435	541	484	481
6	339	450	242	113	219	219	145	359	439	536	439	519
7	346	435	242	82	219	215	145	667	430	533	430	553
8	356	425	238	220	219	215	145	806	432	552	424	546
9	363	415	238	220	219	210	149	710	434	571	416	545
10	382	405	242	224	219	210	149	701	432	578	409	548
11	385	390	238	224	215	215	153	700	439	601	405	549
12	393	381	238	224	215	215	153	672	480	635	400	552
13	404	311	238	224	215	215	157	675	502	654	395	566
14	419	263	238	224	215	215	161	680	515	687	393	571
15	464	263	162	224	215	215	161	696	563	705	386	602
16	544	259	195	228	215	215	165	740	639	717	375	620
17	559	263	225	228	215	210	165	740	744	771	367	623
18	551	263	229	228	210	210	170	740	774	787	366	613
19	550	263	229	228	210	210	174	733	781	778	361	598
20	547	259	229	228	215	210	179	722	799	769	368	590
21	538	259	229	228	219	206	270	657	757	759	343	582
22	535	250	229	228	219	201	355	577	736	748	331	544
23	531	255	225	228	219	201	318	561	735	744	338	524
24	529	250	225	228	219	201	268	511	698	702	349	520
25	525	250	225	233	219	201	284	515	706	676	350	479
26	520	246	225	233	219	197	357	514	715	673	354	460
27	520	246	225	233	219	201	384	382	704	658	357	456
28	520	246	221	233	219	197	392	345	655	654	364	454
29	515	246	225	228	219	192	415	436	652	653	369	449
30	510	246	221	228	---	188	458	465	657	644	374	450
31	500	---	221	224	---	183	---	459	---	644	381	---
TOTAL	13982	9929	7112	6759	6333	6482	6697	17959	17636	20197	12814	15761
MEAN	451	331	229	218	218	209	223	579	588	652	413	525
MAX	559	495	246	233	228	224	458	806	799	787	640	623
MIN	325	246	162	82	210	183	140	345	430	533	331	384
AC-FT	27730	19690	14110	13410	12560	12860	13280	35620	34980	40060	25420	31260

CAL YR 1979	TOTAL 121073	MEAN 332	MAX 680	MIN 162	AC-FT 240100
WTR YR 1980	TOTAL 141661	MEAN 387	MAX 806	MIN 82	AC-FT 281000

12442500 SIMILKAMEEN RIVER NEAR NIGHTHAWK, WA
(International gaging station)

LOCATION.--Lat 48°59'05", long 119°37'02", in NW¼ sec.7, T.40 N., R.26 E., Okanogan County, Hydrologic Unit 17020007, on left bank 1,000 ft (305 m) upstream from Oroville-Tonasket Irrigation District canal intake, 1.6 mi (2.6 km) northeast of Nighthawk, 3.8 mi (6.1 km) downstream from Palmer Creek, and at mile 15.8 (25.4 km).

DRAINAGE AREA.--3,550 mi^2 (9,190 km^2), approximately.

PERIOD OF RECORD.--May 1911 to current year (prior to September 1928, mean monthly discharge included Oroville-Tonasket Irrigation District canal). Published as "near Oroville" 1911-28. Water temperatures January 1949 to September 1950, November 1961 to September 1970, at site 1.7 mi (2.7 km) upstream.

REVISED RECORDS.--WSP 1183: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,137.70 ft (346.771 m) National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Sept. 11, 1928, staff gages at sites 7 mi (11.3 km) downstream (below Oroville-Tonasket Irrigation District canal) at various datums.

REMARKS.--Records excellent. Flow at high stages regulated by natural diversion into and release from Palmer Lake. Several small diversions above station for irrigation of about 2,900 acres (1,170 hm^2) in the United States in 1946 and approximately 10,500 acres (4,250 hm^2) in Canada in 1957. National Weather Service Satellite telemeter at station.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--69 years, 2,297 ft^3/s (65.05 m^3/s), 1,664,000 acre-ft/yr (2,050 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,800 ft^3/s (1,300 m^3/s) June 1, 1972; maximum gage height, 18.78 ft (5.724 m) May 31, 1972; minimum discharge, 65 ft^3/s (1.84 m^3/s) Jan. 3, 1974, gage height, 1.59 ft (0.485 m), result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,800 ft^3/s (419 m^3/s) May 6, gage height, 10.86 ft (3.310 m); minimum, 162 ft^3/s (4.59 m^3/s) Nov. 30, Dec. 1, gage height, 1.95 ft (0.594 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	380	480	183	878	457	625	510	8130	8700	3940	1020	561
2	366	456	247	867	580	707	510	9600	8810	3680	967	557
3	351	438	263	856	634	740	510	11100	8290	3560	942	562
4	340	423	340	813	629	719	500	10600	8020	3500	938	610
5	337	415	430	730	602	646	515	10900	7820	3440	940	617
6	330	400	473	610	596	592	535	13200	7840	3300	903	575
7	324	405	544	500	591	550	550	13900	8240	3070	916	543
8	321	395	604	450	574	544	543	12600	8020	2870	902	520
9	314	390	610	430	567	568	545	11800	8090	2760	874	513
10	314	390	610	360	551	580	545	10900	8750	2790	830	507
11	311	350	754	280	535	569	545	10500	8950	2790	800	492
12	308	326	726	398	510	575	550	10900	8810	2840	776	475
13	302	317	705	425	496	580	555	12400	8840	2880	782	520
14	302	299	698	486	477	560	615	11700	9190	2680	782	817
15	308	263	810	515	463	550	794	11600	9600	2410	788	1160
16	311	259	1140	580	449	530	1040	11100	9240	2280	752	1000
17	321	279	1110	666	469	525	1170	11100	9340	2170	728	866
18	324	317	817	580	471	525	1380	11000	9860	2060	734	781
19	334	326	1480	479	484	545	1710	10800	8620	1950	812	729
20	351	326	2340	451	526	540	2310	10500	7900	1850	923	695
21	358	299	2030	458	529	540	3060	10900	7400	1760	836	695
22	358	279	1930	502	513	540	3160	12300	6860	1690	764	781
23	351	251	1630	509	490	540	3360	11200	6690	1610	716	807
24	351	247	1340	546	477	545	4200	9770	6150	1550	680	791
25	365	259	1270	514	459	545	4900	8700	5560	1490	644	769
26	380	283	1190	470	472	530	4940	8200	5400	1390	615	737
27	434	271	1160	370	490	525	5450	8700	5290	1310	609	707
28	470	239	1110	320	506	530	6980	8790	4980	1250	594	679
29	545	211	995	230	541	515	9240	8620	4580	1180	583	650
30	565	169	928	330	---	525	8950	8510	4250	1130	594	633
31	520	---	923	397	---	520	---	8550	---	1070	579	---
TOTAL	11246	9762	29390	16000	15138	17625	70172	328570	230090	72250	24314	20349
MEAN	363	325	948	516	522	569	2339	10600	7670	2331	784	678
MAX	565	480	2340	878	634	740	9240	13900	9860	3940	1020	1160
MIN	302	169	183	230	449	515	500	8130	4250	1070	579	475
AC-FT	22310	19360	58300	31740	30030	34960	139200	651700	456400	143300	48230	40360

CAL YR 1979 TOTAL 540884 MEAN 1482 MAX 10000 MIN 169 AC-FT 1073000
WTR YR 1980 TOTAL 844906 MEAN 2308 MAX 13900 MIN 169 AC-FT 1676000

12443600 Similkameen River at Oroville, Wash.

LOCATION.--Lat 48°56'05", long 119°26'27", in NE¼SW¼ sec.28, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020007, at 12th Avenue bridge at Oroville, 10.0 mi (16.1 km) east of Nighthawk, 10.8 mi (17.4 km) downstream from gaging station, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--3,5[illegible]0 mi^2 (9,[illegible]00 km^2), approximately.

PERIOD OF RECORD.--Water years 1949-50, 1967-1970 (partial-record station), 1975 to June 1980 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: January 1949 to September 1950, October 1966 to September 1970.

REMARKS.--Water discharge from rating, discharge value is good. Temperature records collected January 1949 to September 1950, October 1966 to September 1970 at county bridge 12.5 mi (20.1 km) upstream and 1.7 mi (2.7 km) upstream from gaging station, published as 12442500 "near Nighthawk."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)
OCT , 1979							
17...	1200	E283	217	8.1	12.8	4	1.0
NOV							
28...	1145	E310	242	7.9	1.0	4	1.0
DEC							
19...	1120	1400	175	8.0	.8	33	7.0
JAN , 1980							
23...	1300	E565	210	8.2	.1	13	1.0
FEB							
27...	1120	480	210	8.0	5.0	25	24
MAR							
26...	1045	580	208	8.2	8.4	13	4.0
APR							
16...	1025	E850	198	8.4	13.0	13	3.0
MAY							
14...	0950	12000	81	7.5	8.9	55	6.0
JUN							
18...	1045	10000	88	7.6	11.9	55	1.0

DATE	OXYGEN, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)
OCT , 1979						
17...	10.6	.02	.010	.01	.020	.06
NOV						
28...	14.6	.10	.040	--	.000	--
DEC						
19...	14.7	.07	.000	.00	.000	.00
JAN , 1980						
23...	15.8	.05	.010	.01	.010	.03
FEB						
27...	13.1	.04	.050	.07	.080	.25
MAR						
26...	11.4	.00	.060	.07	.020	.06
APR						
16...	10.9	.01	.040	.05	.010	.03
MAY						
14...	12.2	.00	.000	.00	.040	.12
JUN						
18...	11.5	.02	.000	.00	.030	.09

12444700 AENEAS LAKE NEAR TONASKET, WA

LOCATION.--Lat 48°40'32", long 119°30'35", in SE¼SW¼ sec.25, T.37 N., R.26 E., Okanogan County, Hydrologic Unit 17020006, at Mr. R. C. Wolfe's residence on south shore 4.0 mi (6.4 km) southwest of Tonasket.

DRAINAGE AREA.--32.4 mi² (83.9 km²).

PERIOD OF RECORD.--February 1964 to current year (fragmentary).

GAGE.--Nonrecording gage. Altitude of gage is 1,390 ft (424 m), from topographic map. Prior to Aug. 25, 1978, recording or nonrecording gages at several locations near present site, all at present datum.

REMARKS.--Pumping from lake and nearby ground-water wells during irrigation season. Diversion from Okanogan River into lake by pumping during irrigation season beginning June 1970.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 11.78 ft (3.590 m) Oct. 21, 1976; minimum observed, -10.68 ft (-3.255 m) Oct. 10, 16, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 7.37 ft (2.246 m) May 20; minimum, 4.56 ft (1.390 m) Aug. 14.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.88	6.67	6.65	---	6.70	7.15	---	7.19	---	6.41	---	5.64
2	---	---	---	6.79	---	---	7.23	---	---	---	5.25	---
3	---	---	6.68	---	6.72	7.18	---	7.13	6.62	---	---	---
4	6.09	---	---	---	---	---	7.22	---	---	---	---	5.50
5	---	6.68	6.69	6.80	---	---	---	---	---	---	5.01	---
6	6.28	---	---	---	---	7.18	7.25	7.19	---	---	---	5.69
7	---	6.67	6.69	6.78	---	---	---	---	6.35	---	4.89	5.70
8	---	---	---	---	6.74	7.19	---	7.21	6.33	---	4.86	---
9	6.50	---	---	---	---	7.19	7.31	---	---	---	---	---
10	---	6.64	6.70	---	6.74	---	7.31	---	6.30	---	---	---
11	6.74	6.64	---	---	---	---	---	---	---	---	4.74	---
12	---	---	6.69	6.86	---	7.19	---	7.18	---	---	---	5.89
13	6.86	6.64	---	6.86	---	---	---	---	6.52	---	---	6.22
14	---	---	---	---	---	---	7.31	7.15	---	---	4.56	---
15	6.76	---	---	---	6.75	7.20	---	---	---	---	---	6.52
16	---	---	---	---	---	7.20	---	---	7.03	---	4.65	---
17	6.71	6.63	6.68	---	---	---	7.31	7.31	---	---	4.69	---
18	---	6.63	6.68	6.87	6.80	7.21	---	---	7.16	---	---	---
19	---	---	---	---	---	7.18	7.31	---	---	---	---	6.71
20	---	---	---	6.86	6.85	7.20	---	7.37	7.08	---	4.64	6.74
21	6.72	6.60	---	---	---	---	7.32	7.35	---	---	---	---
22	---	---	6.72	6.84	6.86	---	---	---	6.97	---	---	---
23	---	---	---	6.83	---	---	7.32	7.15	6.91	---	4.88	6.88
24	6.70	6.64	6.75	---	---	7.21	---	---	---	---	---	---
25	---	---	---	6.83	6.86	---	---	---	---	---	5.21	6.98
26	6.70	6.64	---	---	---	---	7.26	---	---	---	5.24	---
27	---	---	6.74	---	---	---	---	7.01	6.82	---	---	7.05
28	6.70	6.61	---	---	---	7.21	7.24	---	---	---	---	7.08
29	---	---	6.75	---	7.14	---	---	---	---	---	---	---
30	---	---	---	6.73	---	---	---	6.86	6.49	5.54	---	---
31	---	---	6.77	---	---	---	---	6.82	---	5.43	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

12445000 OKANOGAN RIVER NEAR TONASKET, WA

LOCATION.--Lat 48°37'57", long 119°27'38", in lot 3, sec.8, T.36 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 1,000 ft (305 m) upstream from Chewiliken Creek, 5.2 mi (8.4 km) south of Tonasket, and at mile 50.8 (81.7 km).

DRAINAGE AREA.--7,260 mi^2 (18,000 km^2), approximately.

PERIOD OF RECORD.--April 1929 to current year.

REVISED RECORDS.--WSP 862: 1937. WSP 1316: 1934(M), 1938(M). WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 860.78 ft (262.366 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent except those for Jan. 6 to Feb. 9, which are fair. Diversions above station for irrigation of about 10,700 acres (43 km^2) in the United States and 55,000 acres (220 km^2) in Canada. Flow affected by regulation of Okanagan and Skaha Lakes and by natural storage in other lakes.

AVERAGE DISCHARGE.--51 years, 2,935 ft^3/s (83.12 m^3/s), 2,126,000 acre-ft/yr (2,620 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,700 ft^3/s (1,270 m^3/s) June 2, 1972, gage height, 22.54 ft (6.870 m); minimum recorded, 126 ft^3/s (3.57 m^3/s) Sept. 5, 1931, gage height, 3.43 ft (1.045 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,700 ft^3/s (388 m^3/s) May 7, gage height, 12.81 ft (3.904 m); minimum daily discharge, 460 ft^3/s (13.0 m^3/s) Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	600	985	507	1100	540	889	758	8220	8780	4530	1520	813
2	600	955	503	1070	600	937	747	8460	9040	4230	1430	813
3	600	931	525	1060	660	991	758	10500	8640	3980	1390	853
4	600	907	525	1040	760	985	725	10600	8300	3890	1340	871
5	600	895	550	1000	820	943	720	10300	8060	3840	1270	919
6	600	895	595	950	820	895	741	11500	7920	3770	1160	931
7	600	865	625	700	820	853	752	13300	8300	3560	1130	949
8	600	841	680	660	840	818	752	13200	8300	3320	1140	925
9	600	824	725	650	840	813	769	12400	8180	3170	1130	901
10	610	807	741	620	841	829	769	11700	8660	3200	1090	907
11	620	780	730	570	830	841	758	10900	9080	3240	1040	907
12	620	752	835	550	818	829	758	10900	8960	3260	991	907
13	640	730	818	600	796	847	769	11900	8960	3380	967	967
14	655	640	813	640	752	853	774	12200	9080	3330	973	1030
15	675	600	700	700	769	829	847	12000	9630	3060	967	1360
16	725	590	560	750	742	807	1020	12000	9400	2900	961	1620
17	807	580	800	800	730	802	1200	11500	9380	2800	943	1490
18	818	585	1120	740	764	796	1330	11600	10200	2740	943	1370
19	847	615	1150	670	796	796	1600	11400	9320	2620	931	1270
20	859	640	2190	620	877	813	1950	11100	8480	2500	991	1220
21	859	635	2280	600	889	813	2690	10800	7920	2390	1050	1190
22	871	620	2080	620	835	796	3240	12000	7340	2280	961	1190
23	895	610	1910	660	780	807	3350	12100	7040	2190	907	1220
24	907	595	1660	700	747	802	3690	10700	6680	2100	865	1230
25	919	585	1450	720	730	807	4590	9360	6100	2000	835	1200
26	907	585	1390	670	774	796	4870	8640	5780	1920	813	1150
27	925	590	1320	610	1070	791	5050	8740	5800	1820	802	1110
28	949	575	1300	550	1200	774	5970	8900	5470	1740	791	1090
29	967	535	1240	480	1010	785	7940	8840	5130	1660	796	1050
30	1020	489	1150	460	---	763	9280	8780	4800	1590	802	1030
31	1030	---	1110	500	---	763	---	8680	---	1550	824	---
TOTAL	23525	21236	32582	22060	23450	25863	69167	333220	238730	88560	31753	32483
MEAN	759	708	1051	712	809	834	2306	10750	7958	2857	1024	1083
MAX	1030	985	2280	1100	1200	991	9280	13300	10200	4530	1520	1620
MIN	600	489	503	460	540	763	720	8220	4800	1550	791	813
AC-FT	46660	42120	64630	43760	46510	51300	137200	660900	473500	175700	62980	64430

CAL YR 1979 TOTAL 627101 MEAN 1718 MAX 9650 MIN 420 AC-FT 1244000
WTR YR 1980 TOTAL 942629 MEAN 2575 MAX 13300 MIN 460 AC-FT 1870000

12446000 OKANOGAN RIVER AT OKANOGAN, WA

LOCATION.--Lat 48°21'48", long 119°34'36", in SW¼NW¼ sec.16, T.33 N., R.26 E., Okanogan County, Hydrologic Unit 17020006, at highway bridge at Okanogan, 0.2 mi (0.3 km) upstream from Salmon Creek.

DRAINAGE AREA.--7,880 mi² (20,409 km²).

PERIOD OF RECORD.--Water years 1975 to June 1980 (discontinued).

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)
OCT , 1979							
16...	1330	680	320	8.2	14.6	8	2.0
NOV							
27...	1230	680	265	8.1	2.5	8	1.0
DEC							
18...	1230	940	270	8.0	.4	17	3.0
FEB , 1980							
26...	1210	950	292	7.9	1.8	13	4.0
MAR							
25...	1130	960	298	8.4	9.3	17	3.0
APR							
15...	1040	1050	223	8.2	13.0	46	16
MAY							
13...	1120	12000	107	7.8	12.1	50	8.0
JUN							
17...	1145	10000	98	7.7	15.7	42	8.0

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT , 1979							
16...	10.0	.05	.060	.07	.000	.00	.040
NOV							
27...	13.6	.08	.030	.04	.010	.03	.010
DEC							
18...	14.1	.06	.040	.05	.010	.03	.000
FEB , 1980							
26...	14.5	.10	.040	.05	.030	.09	.000
MAR							
25...	11.6	.02	.150	.18	.040	.12	.010
APR							
15...	9.9	.03	.060	.07	.100	.31	.070
MAY							
13...	--	.01	.000	.00	.040	.12	.010
JUN							
17...	9.7	.01	.010	.01	.020	.06	.020

12447200 OKANOGAN RIVER AT MALOTT, WA
(National Stream-quality Accounting Network Station)

LOCATION.--Lat 48°16'53", long 119°42'12", in SW¼ sec.9, T.32 N., R.25 E., Okanogan County, Hydrologic Unit 17020006, on right bank 75 ft (23 m) upstream from highway bridge at Malott, 0.1 mi (0.2 km) upstream from Loup Loup Creek, and at mile 17.0 (27.4 km).

DRAINAGE AREA.--8,080 mi^2 (20,930 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958 to current year. April 1958 to September 1965, published as "near Malott." Records published for both sites December 1965 to July 1967.

REVISED RECORDS.--WDR WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 783.55 ft (238.826 m), National Geodetic Vertical Datum of 1929. April 1958 to November 1965, water-stage recorder at site 3.9 mi (6.3 km) downstream at National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records excellent except those for Jan. 8 to Feb. 13, which are fair. Diversions above station for irrigation of about 22,000 acres (89 km^2) in the United States and 55,000 acres (220 km^2) in Canada. Flow regulated by Okanagan and Skaha Lakes and by natural storage in other lakes.

AVERAGE DISCHARGE.--22 years, 3,059 ft^3/s (86.63 m^3/s), 2,216,000 acre-ft/yr (2,730 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,600 ft^3/s (1,290 m^3/s) June 3, 1972, gage height, 22.16 ft (6.754 m); minimum observed, 288 ft^3/s (8.16 m^3/s) Sept. 4, 1970, gage height, 2.03 ft (0.619 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,400 ft^3/s) (379 m^3/s) May 7, gage height, 10.60 ft (3.231 m) from inside well high-water mark; minimum daily discharge, 520 ft^3/s (14.7 m^3/s) Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	631	1090	540	1100	640	1230	879	8740	8980	4740	1590	852
2	639	1050	560	1160	660	1090	870	8290	9210	4420	1530	861
3	655	1030	540	1130	800	1170	861	9700	9120	4120	1470	852
4	647	1010	560	1120	1000	1180	879	11000	8670	3960	1440	888
5	639	996	570	1090	1050	1100	870	10500	8380	3910	1370	906
6	615	969	592	1010	1060	1040	897	11000	8200	3830	1290	960
7	615	951	631	746	1070	1010	897	13200	8400	3700	1200	969
8	615	933	671	730	1080	960	888	13000	8600	3430	1180	978
9	607	906	729	720	1100	924	951	12000	8450	3230	1190	951
10	615	888	780	700	1100	924	1040	11500	8670	3190	1170	942
11	631	870	771	660	1100	951	996	11000	9160	3230	1130	951
12	639	843	789	620	1080	951	969	11000	9160	3260	1070	951
13	647	816	879	600	1070	942	978	11500	9080	3320	1020	1020
14	663	789	861	660	1040	969	1020	12000	9140	3380	1010	1090
15	679	695	834	750	1020	951	1070	12000	9550	3200	1010	1160
16	703	663	585	820	1030	924	1150	12000	9620	2970	996	1550
17	771	655	703	870	1000	915	1360	11000	9480	2850	996	1620
18	843	639	951	920	1020	906	1530	11500	9840	2760	996	1490
19	879	647	987	870	1070	906	1690	11000	9730	2670	987	1390
20	933	671	1320	760	1160	924	2040	11000	8830	2560	978	1340
21	933	695	2320	700	1240	942	2490	11000	8260	2450	1050	1290
22	933	703	2160	700	1230	933	3220	12000	7720	2350	1070	1260
23	942	695	2040	720	1140	933	3470	12000	7340	2250	978	1270
24	978	671	1880	750	1050	933	3670	11000	7120	2170	924	1290
25	1010	655	1630	780	1040	924	4310	9040	6510	2070	888	1310
26	996	647	1480	800	1070	924	4990	9010	6080	2080	861	1260
27	1010	639	1430	740	1420	924	5150	8030	5990	1920	843	1210
28	1010	620	1370	660	2070	906	5700	9120	5750	1830	834	1180
29	1020	590	1350	570	1900	906	7270	9120	5430	1760	816	1150
30	1040	560	1280	520	---	906	9070	9070	5040	1680	825	1130
31	1100	---	1220	560	---	879	---	8940	---	1600	843	---
TOTAL	24638	23586	33013	24616	32310	30077	71175	332860	245510	90810	33555	34071
MEAN	795	786	1065	794	1114	970	2373	10740	8184	2929	1082	1136
MAX	1100	1090	2320	1100	2070	1230	9070	13200	9840	4740	1590	1620
MIN	607	560	540	520	640	879	861	8290	5040	1600	816	852
AC-FT	48870	46780	65480	48830	64090	59660	141200	660200	487000	180100	66560	67580

CAL YR 1979 TOTAL 645628 MEAN 1769 MAX 9820 MIN 372 AC-FT 1281000
WTR YR 1980 TOTAL 976221 MEAN 2667 MAX 13200 MIN 520 AC-FT 1936000

12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-62, 1963-70 (partial-record station), 1972, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: November 1969 to June 1971.

REMARKS.--Water years 1959 to 1963 published as 12447300 "near Brewster", 1964 to 1966 published as 12447300 "near Malott."

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT , 1979											
16...	1240	703	325	8.2	14.5	--	--	--	--	139	36
18...	0830	843	308	8.3	11.6	1.3	9.0	92	88	144	38
NOV											
05...	1130	987	295	8.1	8.2	.30	10.3	K10	48	135	36
27...	1150	639	345	8.0	2.0	--	--	--	--	142	37
DEC											
03...	1500	E540	343	8.3	.0	.40	12.6	68	78	148	38
JAN , 1980											
14...	1400	E660	307	7.3	.3	--	11.7	10	10	129	35
FEB											
04...	1320	E1000	310	7.4	.2	1.2	11.6	77	15	133	35
MAR											
03...	1530	1190	285	7.6	5.9	21	9.4	350	14	120	32
APR											
01...	1315	879	286	8.0	9.8	4.6	10.6	<1	4	131	36
JUN											
02...	1430	9350	96	7.8	12.0	10	9.4	K1200	--	44	13
AUG											
04...	1430	1430	239	8.4	23.0	1.8	8.4	K21	<1	103	28

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT , 1979											
16...	12	12	15	.4	2.7	120	1.2	43	2.3	--	--
18...	12	11	13	.4	2.7	120	.9	41	2.4	.3	7.8
NOV											
05...	11	11	14	.4	2.3	120	1.5	38	2.2	.2	7.8
27...	12	12	15	.4	2.5	130	2.0	43	2.8	--	--
DEC											
03...	13	12	14	.4	2.4	130	1.0	44	2.4	.2	8.3
JAN , 1980											
14...	10	10	14	.3	2.0	120	9.5	37	2.3	.2	9.6
FEB											
04...	11	12	16	.4	2.3	120	7.5	38	2.4	.2	8.6
MAR											
03...	9.7	12	17	.4	3.0	110	4.3	35	2.3	.2	11
APR											
01...	10	10	13	.3	2.3	110	1.7	40	2.4	.2	8.7
JUN											
02...	2.9	3.0	12	.2	.8	37	.9	7.8	.9	.1	10
AUG											
04...	8.1	8.7	15	.3	2.0	99	.6	26	1.9	.3	8.6

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
OCT , 1979										
16...	--	--	--	--	.03	.000	.03	--	.010	--
18...	209	187	.28	476	--	--	.02	.00	.020	.010
NOV										
05...	168	180	.22	448	--	--	.02	.03	.020	.030
27...	--	--	--	--	.08	.010	.09	--	.080	--
DEC										
03...	204	198	.27	--	--	--	--	.05	.030	.010
JAN , 1980										
14...	187	178	.25	--	--	--	.13	.13	.000	.000
FEB										
04...	200	181	.27	--	--	--	.10	.09	.000	.020
MAR										
03...	165	171	.22	530	--	--	.23	.19	.130	.090
APR										
01...	179	176	.24	425	--	--	.03	.02	.020	.040
JUN										
02...	82	60	.11	2070	--	--	.05	.06	.000	.000
AUG										
04...	145	143	.19	560	--	--	.01	.00	.060	.060

K Results based on colony count outside the acceptable range (non-ideal colony count).

12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT , 1979										
16...	.01	--	.56	--	.57	--	--	.60	2.6	.010
18...	.02	.01	.40	.37	.42	.04	.38	.44	1.9	.020
NOV										
05...	.02	.03	.53	.46	.55	.06	.49	.57	2.5	.070
27...	.10	--	.45	--	.53	--	--	.62	2.7	.030
DEC										
03...	.04	.01	--	.48	--	.00	.49	--	--	.010
JAN , 1980										
14...	.00	.00	.74	.76	.74	.00	.76	.87	3.8	.030
FEB										
04...	.00	.02	.30	.16	.30	.12	.18	.40	1.7	.040
MAR										
03...	.16	.11	.50	.31	.63	.23	.40	.86	3.8	.130
APR										
01...	.02	.05	.61	.27	.63	.32	.31	.66	2.9	.050
JUN										
02...	.00	.00	2.2	.27	2.20	1.9	.27	2.2	9.9	.050
AUG										
04...	.07	.07	.79	.71	.85	.08	.77	.86	3.8	.030

DATE	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1979										
16...	.03	--	.010	.03	--	--	--	--	--	--
18...	.06	.010	--	--	--	3.1	.3	9	20	--
NOV										
05...	.21	.010	--	--	7.6	--	--	8	21	--
27...	.09	--	.010	.03	--	--	--	--	--	--
DEC										
03...	.03	.000	--	--	7.7	--	--	3	--	--
JAN , 1980										
14...	.09	.020	--	--	--	3.5	.3	6	--	--
FEB										
04...	.12	.020	--	--	7.6	--	--	3	--	--
MAR										
03...	.40	.060	--	--	6.7	--	--	54	174	82
APR										
01...	.15	.040	--	--	--	7.3	.8	30	71	74
JUN										
02...	.15	.010	--	--	5.6	--	--	86	2171	--
AUG										
04...	.09	.010	--	--	--	6.9	--	7	27	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT , 1979										
16...	1240	--	--	5	--	--	50	--	--	<1
18...	0830	5	0	5	300	300	40	2	1	<1
NOV										
27...	1150	--	--	5	--	--	0	--	--	0
DEC										
03...	1500	--	--	--	--	--	--	--	--	--
JAN , 1980										
14...	1400	4	0	4	100	50	50	0	0	2
MAR										
03...	1530	--	--	--	--	--	--	--	--	--
APR										
01...	1315	5	1	4	100	60	40	0	0	1
JUN										
02...	1430	--	--	--	--	--	--	--	--	--
AUG										
04...	1430	9	0	9	100	60	40	0	--	<1

12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)
OCT , 1979										
16...	--	--	0	--	--	--	--	--	2	--
18...	0	0	0	0	0	<3	6	6	0	170
NOV										
27...	--	--	20	--	--	--	--	--	0	--
DEC										
03...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
14...	10	0	10	2	0	<3	7	7	0	90
MAR										
03...	--	--	--	--	--	--	--	--	--	--
APR										
01...	0	0	0	2	0	<3	7	4	3	430
JUN										
02...	--	--	--	--	--	--	--	--	--	--
AUG										
04...	10	0	10	2	--	<3	12	9	3	170

DATE	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV--ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)
OCT , 1979										
16...	--	--	--	--	20	--	--	--	.5	--
18...	160	<10	21	16	5	40	30	10	.1	.1
NOV										
27...	--	--	--	--	6	--	--	--	.4	--
DEC										
03...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
14...	70	20	11	9	2	10	0	20	1.0	.3
MAR										
03...	--	--	--	--	--	--	--	--	--	--
APR										
01...	420	10	13	12	1	70	10	60	1.2	1.2
JUN										
02...	--	--	--	--	--	--	--	--	--	--
AUG										
04...	--	<10	14	12	2	20	10	9	.2	.2

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1979										
16...	--	--	--	0	--	--	0	--	--	4
18...	.0	0	0	0	0	0	0	0	0	7
NOV										
27...	--	--	--	0	--	--	0	--	--	0
DEC										
03...	--	--	--	--	0	--	--	--	--	--
JAN , 1980										
14...	.7	0	0	0	0	0	0	20	10	6
MAR										
03...	--	--	--	--	0	--	--	--	--	--
APR										
01...	.0	0	0	0	0	0	0	20	20	4
JUN										
02...	--	--	--	--	0	--	--	--	--	--
AUG										
04...	.0	0	0	0	2	2	0	10	6	4

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT (G/SQ M)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT (G/SQ M)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
OCT , 1979					
18...	0930	13.6	14.6	8.79	4.46
APR , 1980					
01...	1415	4.85	5.21	3.99	1.74

12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE	NOV 5,79	MAR 3,80	JUN 2,80	AUG 4,80
TIME	1130	1530	1430	1430
TOTAL CELLS/ML	21000	3700	160	2200
DIVERSITY: DIVISION	1.1	1.1	0.9	1.6
.CLASS	1.1	1.2	0.9	1.6
..ORDER	0.0	1.7	1.2	2.0
...FAMILY	0.0	2.8	2.2	2.2
....GENUS	0.0	3.2	2.2	2.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	24	1	52#	33	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	47	1	--	-	40	2
....DICTYOSPHAERIUM	--	-	--	-	--	-	40	2
....KIRCHNERIELLA	--	-	24	1	--	-	--	-
....OOCYSTIS	--	-	--	-	26#	17	130	6
....SELENASTRUM	--	-	--	-	--	-	110	5
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	--	-	26#	17	--	-
....TETRASTRUM	--	-	--	-	--	-	54	2
..TETRASPORALES								
...COCCOMYXACEAE								
....ELAKATOTHRIX	130	1	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	--	-	180	8
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	3060	15	640#	17	--	-	590#	27
....MELOSIRA	--	-	--	-	39#	25	27	1
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	130	1	24	1	--	-	--	-
....COCCONEIS	*	0	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	24	1	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	*	0	120	3	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	47	1	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	430	11	--	-	13	1
....FRAGILARIA	*	0	95	3	--	-	40	2
....SYNEDRA	*	0	260	7	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	47	1	--	-	--	-
...NAVICULACEAE								
....MASTOGLOIA	*	0	--	-	--	-	--	-
....NAVICULA	1100	5	620#	17	--	-	--	-
....PINNULARIA	--	-	24	1	--	-	--	-
...NITZSCHIACEAE								
....HANTZSCHIA	--	-	24	1	--	-	--	-
....NITZSCHIA	570	3	190	5	13	8	67	3
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	--	-	47	1	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE	130	1	--	-	--	-	--	-
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	630	3	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	130	1	--	-	--	-	860#	40
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	13000#	64	1000#	27	--	-	--	-
....SCHIZOTHRIX	1300	6	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	24	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

12447374 METHOW RIVER BELOW GATE CREEK NEAR MAZAMA, WA

LOCATION.--Lat 48°37'46", long 120°27'50", in SW¼SW¼ sec.10, T.36 N., R.19 E., Okanogan County, Hydrologic Unit 17020008, at gate Creek campground 0.2 mi (0.3 km) downstream from Gate Creek, 2.5 mi (4.0 km) upstream from Early Winters Creek and 3.9 mi (6.3 km) northwest of Mazama, and at mile 69.8 (112.3 km).

PERIOD OF RECORD.--Water years 1975 to June 1980 (discontinued).

REMARKS.--Water discharge from rating; discharge value is fair.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN-DISSOLVED (MG/L)
MAR , 1980 26...	0730	12	146	8.0	3.2	13	6.0	11.4
APR 16...	0720	415	111	7.7	3.3	29	4.0	11.9
MAY 14...	0635	2160	70	7.6	5.5	21	2.0	11.4
JUN 18...	0740	1850	66	7.6	6.3	17	3.0	10.5

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
MAR , 1980 26...	.03	.060	.07	.020	.06	.010	.03
APR 16...	.05	.000	.00	.030	.09	.000	.00
MAY 14...	.02	.000	.00	.020	.06	.000	.00
JUN 18...	.03	.000	.00	.010	.03	.010	.03

12447390 ANDREWS CREEK NEAR MAZAMA, WA
(Hydrologic bench-mark station)

LOCATION.--Lat 48°49'23", long 120°08'41", in NE¼ sec.1, T.38 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, Okanogan National Forest, on left bank 50 ft (15 m) upstream from Blizzard Creek, 3.5 mi (5.6 km) upstream from mouth, and 20 mi (32 km) northeast of Mazama.

DRAINAGE AREA.--22.1 mi^2 (57.2 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

REVISED RECORDS.--WDR WA-76-2: 1975, WDR WA-77-2: 1976.

GAGE.--Water-stage recorder. Altitude of gage is 4,300 ft (1,310 m), from topographic map.

REMARKS.--Water-discharge records good except those for April 12 to June 10, which are fair. No regulation or diversion.

AVERAGE DISCHARGE.--12 years, 33.1 ft^3/s (0.937 m^3/s), 20.34 in/yr (517 mm/yr) 23,980 acre-ft/yr (29.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft^3/s (31.7 m^3/s) June 10, 1972, gage height, 4.00 ft (1.219 m) from rating curve extended above 440 ft^3/s (12.5 m^3/s); minimum, 1.2 ft^3/s (0.034 m^3/s) Nov. 4, 1968, Nov. 20, 1970, Apr. 7, 1975; minimum gage height, 0.27 ft (0.082 m) Mar. 25-29, Apr. 6, 7, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s (5.66 m^3/s) and maximum (*) from high-water mark.

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 6	unknown	*465	13.2	*2.90	0.884
June 13	2100	245	6.94	2.45	0.747
June 16	2400	416	11.8	2.81	0.856

Minimum discharge, 1.9 ft^3/s (0.054 m^3/s) Nov. 19, gage height 0.31 ft (0.094 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	7.6	4.8	4.4	3.2	5.3	4.1	170	100	55	18	9.5
2	6.2	8.9	5.0	4.4	3.3	5.0	4.1	180	100	53	17	11
3	6.0	9.5	5.0	4.1	3.4	4.8	4.1	190	100	50	18	9.5
4	5.7	8.7	5.0	4.1	3.5	4.8	4.4	190	94	51	17	8.9
5	5.5	8.4	5.3	4.1	3.5	4.8	4.4	220	88	49	16	8.7
6	5.5	8.1	5.3	3.9	3.5	4.6	4.4	280	88	43	17	8.7
7	5.3	7.9	5.0	3.8	3.5	4.6	4.1	250	88	40	16	8.7
8	5.0	7.3	5.0	3.6	3.5	4.6	4.4	240	88	38	15	8.7
9	5.0	7.0	5.7	3.6	3.3	4.6	4.4	210	94	38	15	8.7
10	4.8	7.0	5.7	3.5	3.3	4.6	4.4	190	110	37	14	8.7
11	4.8	6.0	5.3	3.5	3.3	4.6	4.4	160	137	40	14	8.4
12	4.6	5.7	5.3	3.6	3.3	4.6	5.0	170	145	42	14	8.4
13	4.6	6.0	5.0	3.7	3.3	4.6	6.0	180	163	36	15	17
14	4.8	6.0	5.0	3.9	3.3	4.6	7.0	170	175	34	16	20
15	5.3	5.7	5.0	3.7	3.3	4.4	9.0	160	172	32	14	13
16	5.0	7.3	4.8	3.7	3.3	4.4	11	160	193	31	13	11
17	5.3	6.8	4.8	3.5	3.3	4.4	15	160	221	30	13	10
18	5.3	6.0	5.0	3.5	3.3	4.4	19	160	152	29	20	9.5
19	5.5	4.6	5.0	3.5	3.3	4.4	23	160	137	28	17	9.5
20	5.3	5.3	5.0	3.5	3.1	4.4	28	160	122	27	14	12
21	5.0	4.4	4.8	3.5	3.1	4.4	35	150	106	26	13	9.8
22	5.7	4.8	4.8	3.3	3.1	4.4	47	170	106	25	13	9.8
23	6.5	6.0	4.8	3.2	3.1	4.4	60	150	95	24	12	10
24	7.0	6.2	4.8	3.2	3.1	4.4	70	130	81	23	11	9.2
25	20	5.7	4.6	3.1	3.1	4.4	90	110	81	22	11	8.9
26	16	5.3	4.6	3.1	3.1	4.4	100	100	77	22	10	8.7
27	20	5.0	4.4	3.1	3.5	4.4	120	100	69	21	10	8.7
28	15	4.8	4.4	3.0	7.0	4.4	140	100	63	20	10	8.7
29	12	4.6	4.4	3.0	6.2	4.4	180	100	60	20	9.8	8.7
30	11	4.6	4.4	3.0	---	4.4	170	100	56	19	9.2	8.7
31	9.5	---	4.4	3.1	---	4.1	---	100	---	18	8.9	---
TOTAL	233.8	191.2	152.4	110.2	102.1	140.6	1182.2	5070	3361	1023	430.9	301.1
MEAN	7.54	6.37	4.92	3.55	3.52	4.54	39.4	164	112	33.0	13.9	10.0
MAX	20	9.5	5.7	4.4	7.0	5.3	180	280	221	55	20	20
MIN	4.6	4.4	4.4	3.0	3.1	4.1	4.1	100	56	18	8.9	8.4
CFSM	.34	.29	.22	.16	.16	.21	1.78	7.42	5.07	1.49	.63	.45
IN.	.39	.32	.26	.19	.17	.24	1.99	8.53	5.66	1.72	.73	.51
AC-FT	464	379	302	219	203	279	2340	10060	6670	2030	855	597

CAL YR 1979 TOTAL 7402.4 MEAN 20.3 MAX 195 MIN 3.7 CFSM .92 IN 12.46 AC-FT 14680
WTR YR 1980 TOTAL 12298.5 MEAN 33.6 MAX 280 MIN 3.0 CFSM 1.52 IN 20.70 AC-FT 24390

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT , 1979 02...	1000	6.4	51	7.4	4.3	11.1	11	<1	<1	19	6.3	.9
NOV 06...	1015	8.0	45	7.4	1.9	10.5	22	<1	1	--	--	--
DEC 11...	1030	5.3	45	7.4	.5	10.1	11	<1	<1	20	6.8	.9
FEB , 1980 05...	1500	3.5	51	7.6	1.0	10.8	<1	<1	<1	22	7.2	1.0
MAR 04...	1130	4.5	53	7.7	.4	10.8	<1	<1	<1	25	7.6	1.5
APR 02...	0900	4.5	55	7.4	.6	10.9	<1	<1	--	22	7.3	1.1
JUN 03...	1145	102	23	7.6	3.4	10.2	5	<1	<1	9	3.2	.4
AUG 05...	1015	16	50	7.4	7.5	10.2	15	2	2	19	6.1	1.1

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
OCT , 1979 02...	2.3	19	.2	.5	22	1.3	2.8	.3	.1	10	29
NOV 06...	--	--	--	--	20	1.2	2.8	.8	.1	--	50
DEC 11...	2.1	17	.2	.5	25	1.5	.0	.2	.1	9.9	35
FEB , 1980 05...	2.6	19	.2	.6	26	1.0	.7	.4	.0	11	46
MAR 04...	3.7	23	.3	.6	27	.8	1.2	.0	.1	10	33
APR 02...	2.4	18	.2	.6	23	1.4	4.1	.3	.1	11	46
JUN 03...	1.3	21	.1	.3	--	--	1.5	.1	.1	7.9	28
AUG 05...	2.0	17	.2	.7	25	1.5	2.1	1.3	.2	10	46

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
OCT , 1979 02...	36	.03	.50	.08	--	.000	.00	--	--	2	.03
NOV 06...	--	.06	1.0	.09	.10	.020	.06	--	--	6	.13
DEC 11...	35	.04	.50	.06	.04	.000	.00	.000	.00	1	.01
FEB , 1980 05...	39	.06	.43	.04	.06	.010	.03	.010	.03	4	.03
MAR 04...	40	.04	.40	.06	.04	.000	.00	.010	.03	2	.02
APR 02...	40	.06	.55	.10	.07	.020	.06	.030	.09	1	.01
JUN 03...	20	.03	7.7	.03	.02	.010	.03	--	--	2	.55
AUG 05...	38	.06	2.0	.06	.00	.030	.09	.010	.03	1	.04

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
FEB , 1980 05...	1500	0	0	0	0	0	30	0	0	<1
JUN 03...	1145	3	0	3	0	0	30	0	--	<1

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
FEB , 1980										
05...	0	0	0	<3	5	0	<10	10	0	<10
JUN										
03...	0	--	--	<3	3	--	<10	60	--	<10

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)
FEB , 1980									
05...	1	0	<10	0	0	<1	.7	.2	.5
JUN									
03...	3	--	<10	10	8	2	.1	.1	.0

DATE	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
FEB , 1980									
05...	0	0	0	0	0	0	0	0	10
JUN									
03...	0	0	0	1	1	0	10	--	<3

RADIOCHEMICAL ANALYSES

DATE	TIME	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	URANIUM DISSOLVED, EXTRACTION (UG/L)
FEB , 1980								
05...	1500	<.4	<.3	.9	<.4	.9	<.4	.19

DATE	TIME	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
OCT , 1979			
02...	1000	2	.03
NOV			
06...	1015	6	.13
DEC			
12...	1030	1	--
FEB , 1980			
05...	1500	4	.04
MAR			
04...	1130	2	.02
APR			
02...	0900	1	.01
JUN			
03...	1145	2	.55
AUG			
05...	1015	1	.04

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JUN , 1980								
03...	1145	.0	.00	.00	.00	.00	.00	.00

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)
JUN , 1980									
03...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)
JUN , 1980								
03...	.00	.00	.00	.00	.00	.00	0	.00

12449510 METHOW RIVER NEAR TWISP, WA

LOCATION.--Lat 48°20'53", long 120°06'21", in SE¼NE¼ sec.21, T.33 N., R.22 E., Okanogan County, Hydrologic Unit 17020008. 1.3 mi (2.1 km) southeast of Twisp city limits, 2.2 mi (3.5 km) upstream from Beaver Creek and 3.0 mi (4.8 km) downstream from Twisp River.

PERIOD OF RECORD.--Water years 1976 to June 1980 (discontinued).

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1979								
17...	0730	281	161	8.1	12.3	8	2.0	10.5
NOV								
28...	0730	215	100	7.7	.5	4	2.0	13.7
DEC								
19...	0730	E200	130	7.6	3.1	8	2.0	12.4
JAN , 1980								
23...	0745	310	140	8.0	.0	13	1.0	14.9
FEB								
27...	0700	250	130	7.4	2.0	4	1.0	12.0
MAR								
26...	0630	413	152	7.7	5.5	4	2.0	11.1
APR								
16...	0615	1370	131	7.9	5.6	17	5.0	11.6
MAY								
14...	0525	14300	52	7.4	9.5	29	6.0	11.2
JUN								
18...	0620	6070	60	7.5	8.4	21	5.0	10.3

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979							
17...	.17	.010	.01	.010	.03	.030	.09
NOV							
28...	.55	.080	.10	.010	.03	.010	.03
DEC							
19...	.12	.000	.00	.010	.03	.030	.09
JAN , 1980							
23...	.17	.010	.01	.010	.03	.010	.03
FEB							
27...	.16	.040	.05	.010	.03	.000	.00
MAR							
26...	.15	.080	.10	.010	.03	.000	.00
APR							
16...	.14	.060	.07	.040	.12	.000	.00
MAY							
14...	.03	.000	.00	.030	.09	.010	.03
JUN							
18...	.03	.010	.01	.010	.03	.010	.03

12449950 METHOW RIVER NEAR PATEROS, WA

LOCATION.--Lat 48°04'39", long 119°59'02", in SE¼SW¼ sec.20, T.30 N., R.23 E., Okanogan County, Hydrologic Unit 17020008, on right bank 1.4 mi (2.3 km) downstream from Black Canyon Creek, 4.3 mi (6.9 km) northwest of Pateros, and at mile 6.7 (10.8 km).

DRAINAGE AREA.--1,772 mi^2 (4,589 km^2).

PERIOD OF RECORD.--April 1959 to current year. Water temperatures October 1968 to October 1970.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 900 ft (274 m) from topographic map. Prior to Dec. 17, 1964, nonrecording gage at same site and datum.

REMARKS.--Records good except those for Jan. 7 to Feb. 11, which are poor. Diversions for irrigation of about 11,000 acres (45 km^2) above station (1959 Bureau of Reclamation land classification). National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--21 years, 1,595 ft^3/s (45.17 m^3/s), 1,156,000 acre-ft/yr (1,430 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,800 ft^3/s (816 m^3/s) May 31, 1972, gage height, 12.25 ft (3.734 m); minimum daily, 150 ft^3/s (4.25 m^3/s) Jan. 8, 9, 10, 1974, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1920, 46,700 ft^3/s (1,320 m^3/s) May 29, 1948, by slope-area measurement of peak flow at site 1 mi (1.6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,500 ft^3/s (326 m^3/s) May 6, gage height, 7.93 ft (2.417 m); minimum, 246 ft^3/s (6.97 m^3/s) Nov. 28, gage height, 1.14 ft (0.347 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	286	421	360	411	360	416	504	7620	5260	2650	783	369
2	286	406	320	402	380	411	594	8770	5110	2650	734	374
3	282	406	400	397	410	416	606	9190	4730	2670	714	378
4	286	411	430	387	440	421	630	8920	4290	2550	690	378
5	290	426	406	383	430	416	660	9130	4010	2300	666	365
6	286	426	376	347	420	411	690	10700	4080	2210	648	356
7	286	406	369	320	430	406	684	10400	4060	2060	636	351
8	282	397	356	300	400	411	666	9460	4010	2000	624	334
9	278	383	347	290	380	416	708	8950	4480	2050	612	330
10	278	383	347	290	370	416	734	8300	5030	2200	594	322
11	282	374	347	330	360	426	768	7300	5150	2100	572	318
12	286	369	343	360	347	435	769	8280	5190	2030	556	313
13	290	360	343	380	343	450	846	8920	5510	1950	556	343
14	294	351	351	400	334	455	1030	8300	5990	1830	572	509
15	309	347	426	370	334	455	1300	8300	6030	1760	567	755
16	343	347	445	380	334	450	1460	7920	6140	1640	539	654
17	347	351	416	370	339	455	1640	7870	6480	1580	523	612
18	347	347	416	360	347	455	1870	7950	5950	1510	528	578
19	369	343	470	370	343	455	2090	8120	5420	1440	545	556
20	374	339	490	360	352	470	2620	7650	5260	1380	539	545
21	369	334	485	350	347	475	3040	8100	4920	1310	512	550
22	374	343	470	340	339	485	3320	8300	4580	1280	495	545
23	374	343	445	330	330	523	3790	7470	4310	1270	475	534
24	383	330	450	330	330	545	4810	6460	3840	1220	455	517
25	440	334	445	320	334	556	5570	5630	3520	1150	435	512
26	460	326	430	310	347	562	5510	5230	3550	1070	430	495
27	475	294	421	290	360	567	5910	5340	3320	1010	421	485
28	475	280	416	280	380	567	7700	5170	3080	970	402	480
29	470	270	411	270	411	572	8860	5090	2890	923	397	465
30	465	300	406	270	---	572	8150	5070	2700	881	392	460
31	430	---	416	300	---	578	---	5090	---	825	370	---
TOTAL	10776	10747	12531	10597	10619	14648	77660	239160	138970	52529	16990	13863
MEAN	348	358	404	342	366	473	2589	7715	4632	1694	548	462
MAX	475	426	490	411	440	578	8860	10700	6480	2670	783	755
MIN	278	270	320	270	330	406	504	5070	2700	825	370	313
AC-FT	21370	21320	24860	21020	21060	29050	154100	474400	275600	104200	33700	27500

CAL YR 1979 TOTAL 308537 MEAN 845 MAX 5370 MIN 270 AC-FT 612000
WTR YR 1980 TOTAL 609090 MEAN 1664 MAX 10700 MIN 270 AC-FT 1208000

12449954 METHOW RIVER AT 2ND BRIDGE NEAR PATEROS, WA

LOCATION.--Lat 48°04'29", long 119°57'20", in NW¼NE¼ sec.28, T.30 N., R.23 E., Okanogan County, Hydrologic Unit 17020008, at bridge on State Highway 153, 1.7 mi (2.7 km) downstream from gaging station, 3.1 mi (5.0 km) downstream from Black Canyon Creek, 3.0 mi (4.8 km) west of Pateros, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--1,777 mi² (4,602 km²).

PERIOD OF RECORD.--Water years 1959-1962, 1963-1970 (partial- record station), 1972, 1975 to June 1980 (discontinued).

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is fair. Water temperature records collected October 1968 to October 1970 at gaging station 1.7 mi (2.7 km) upstream. Records prior to October 1974 published as 12449950 "Methow River near Pateros" at an erroneous location, but were actually obtained at the present site.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)
OCT, 1979 16...	1130	347	170	8.2	12.4	4	1.0	10.6	87
NOV 27...	1045	290	190	7.6	1.0	4	1.0	15.4	83
DEC 18...	1125	411	167	7.9	1.9	8	2.0	14.0	74
JAN, 1980 22...	1250	340	180	8.0	.1	4	1.0	15.7	80
FEB 26...	1100	347	170	7.9	5.0	4	2.0	13.0	75
MAR 25...	1030	540	131	8.3	7.0	4	3.0	12.0	81
APR 15...	0920	1220	154	8.1	9.6	13	8.0	11.4	73
MAY 13...	1010	9190	80	9.2	8.2	42	14	12.2	28
JUN 17...	1035	6660	63	7.6	11.0	21	3.0	11.0	27

DATE	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)
OCT, 1979 16...	--	27	4.9	4.7	10	.2	.9	89	.8
NOV 27...	--	26	4.6	4.3	9	.2	.8	84	3.3
DEC 18...	--	23	4.1	3.9	10	.2	.8	80	1.6
JAN, 1980 22...	0	25	4.5	4.7	11	.2	.8	88	1.2
FEB 26...	1	24	3.8	4.2	10	.2	1.1	74	1.4
MAR 25...	6	25	4.6	4.5	10	.2	1.4	75	.5
APR 15...	7	23	3.9	3.9	10	.2	.8	65	.8
MAY 13...	—	8.9	1.4	4.8	26	.4	1.0	32	.0
JUN 17...	2	8.8	1.3	1.6	11	.1	.4	25	.9

DATE	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
OCT, 1979 16...	13	.7	.25	.000	.00	.010	.03	.000	.00
NOV 27...	11	.9	.37	.080	.10	.020	.06	.000	.00
DEC 18...	5.9	.5	.21	.000	.00	.000	.00	.000	.00
JAN, 1980 22...	6.8	.4	.26	.010	.01	.020	.06	.000	.00
FEB 26...	7.8	1.9	.21	.030	.04	.010	.03	.010	.03
MAR 25...	9.1	1.1	.18	.040	.05	.020	.06	.000	.00
APR 15...	9.5	1.0	.10	.060	.07	.040	.12	.030	.09
MAY 13...	2.0	.9	.03	.000	.00	.040	.12	.000	.00
JUN 17...	.8	--	.02	.000	.00	.120	.37	.010	.03

12449954 METHOW RIVER AT 2ND BRIDGE NEAR PATEROS, WA--Continued

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT , 1979											
16...	1130	1	30	<1	0	0	18	.3	0	0	<3
NOV											
27...	1045	2	0	0	10	0	3	.4	0	0	0
DEC											
18...	1125	2	30	<1	20	0	0	.6	0	2	3
JAN , 1980											
22...	1250	4	30	<1	10	0	0	.2	0	0	<3
FEB											
26...	1100	2	30	1	20	3	3	.8	0	0	5
MAR											
25...	1030	2	30	3	20	3	9	.5	0	0	10
APR											
15...	0920	1	20	<1	0	2	17	.1	0	0	5
MAY											
13...	1010	1	20	<1	0	2	13	.2	0	0	3
JUN											
17...	1035	1	10	<1	0	1	0	.0	0	0	<3

12450700 COLUMBIA RIVER BELOW WELLS DAM, WA

LOCATION.--Lat 47°56'48", long 119°51'56", in SW¼SE¼ sec.6, T.28 N., R.24 E., Chelan County, Hydrologic Unit 17020005, at powerhouse of Wells Dam, 0.7 mi (1.1 km) northeast of Azwell, and at mile 515.9 (830.1 km).

DRAINAGE AREA.--86,100 mi² (223,000 km²), approximately.

PERIOD OF RECORD.--October 1967 to current year. October 1953 to September 1967 (monthly discharge only) on file in District office.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Bechtel Corporation). Prior to Oct. 1, 1970, at site 0.8 mi (1.3 km) downstream at same datum. Auxiliary water-stage recorder 6.8 mi (10.9 km) downstream from base gage at same datum.

REMARKS.--Records good. Discharge for Dec. 1-4 and Dec. 19 provided by N.P.D. Reservoir Control Center. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--27 years, 118,000 ft³/s (3,340 m³/s) 85,490,000 acre-ft/yr (105,000 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 402,000 ft³/s (11,400 m³/s) June 15, 1972; maximum elevation, 731.92 ft (223.089 m) June 16, 1972; minimum discharge, 17,900 ft³/s (507 m³/s) Oct. 5, 1970 (from powerplant records), minimum elevation, 703.55 ft (214.442 m) Sept. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 253,000 ft³/s (7,160 m³/s) Jan. 29, maximum elevation 720.79 ft (219.697 m) June 18; minimum daily discharge, 43,700 ft³/s (1,240 m³/s) Sept. 21, minimum elevation, 703.55 ft (214.442 m) Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83300	94100	96400	69100	95900	47300	80600	114000	162000	109000	86600	65800
2	87600	81900	72800	97900	88000	45400	84900	101000	157000	132000	101000	80100
3	79600	76200	107000	112000	70300	87600	82900	110000	138000	137000	72900	81900
4	75100	69400	97500	114000	95000	85900	72700	90400	140000	123000	93400	86200
5	70200	89200	96500	115000	106000	94800	71600	124000	156000	122000	91500	74900
6	54500	90000	78400	117000	109000	90400	78200	118000	157000	107000	83900	63700
7	50600	86200	80300	141000	105000	76300	101000	139000	151000	114000	85100	52800
8	70700	101000	71300	104000	95100	66200	79100	139000	152000	98900	89300	71000
9	80100	109000	74900	105000	86800	56400	79800	127000	156000	114000	83200	69100
10	80900	92300	113000	96800	83000	94400	66200	103000	156000	112000	60500	72300
11	79600	83600	132000	95200	118000	100000	65300	95100	167000	106000	96600	67000
12	89400	101000	103000	81400	117000	105000	53500	130000	156000	106000	101000	63600
13	72500	104000	104000	80100	119000	98500	45000	145000	145000	95100	101000	49200
14	51400	106000	81800	91500	140000	102000	78700	138000	153000	109000	112000	45800
15	86700	130000	86700	80000	127000	97800	70400	129000	150000	111000	104000	69900
16	91700	99100	87500	74800	106000	74700	59200	126000	171000	104000	86600	73800
17	95200	93500	91900	90500	91900	84800	71100	95300	189000	114000	63300	72000
18	102000	78400	80200	121000	87800	91200	59000	81300	194000	102000	87000	76400
19	95100	122000	73300	98600	91200	84400	50100	114000	180000	113000	85400	85700
20	73100	121000	83400	85500	87100	68300	43900	112000	186000	103000	85300	51300
21	56000	113000	90500	95000	80300	65100	52000	127000	159000	114000	86000	43700
22	86000	82400	92700	89800	78300	49600	49500	149000	155000	100000	89700	67000
23	72600	89100	91100	84700	74500	54800	48700	134000	167000	97100	72100	60800
24	82100	83700	73000	99000	58700	68600	61400	114000	170000	102000	67600	77000
25	74900	76800	52100	103000	91000	65900	75700	101000	161000	105000	110000	71500
26	67700	100000	69000	124000	84300	84500	51300	109000	159000	76000	96900	64500
27	49000	108000	98400	115000	72900	82100	53300	124000	135000	69300	101000	54500
28	50800	108000	114000	137000	72900	75400	99400	140000	140000	104000	86400	49800
29	76000	106000	102000	145000	59100	60800	110000	123000	136000	93500	94000	75300
30	79500	103000	81900	149000	---	62200	100000	151000	135000	96800	82100	63900
31	96100	---	81700	119000	---	94800	---	166000	---	98100	59700	---
TOTAL	2360000	2897900	2758300	3230900	2691100	2415200	2094500	3769100	4733000	3287800	2715100	2000500
MEAN	76130	96600	88980	104200	92800	77910	69820	121600	157800	106100	87580	66680
MAX	102000	130000	132000	149000	140000	105000	110000	166000	194000	137000	112000	86200
MIN	49000	69400	52100	69100	58700	45400	43900	81300	135000	69300	59700	43700
AC-FT	4681000	5748000	5471000	6408000	5338000	4791000	4154000	7476000	9388000	6521000	5385000	3968000

CAL YR 1979 TOTAL 34222700 MEAN 93760 MAX 154000 MIN 48600 AC-FT 67880000
WTR YR 1980 TOTAL 34953400 MEAN 95500 MAX 194000 MIN 43700 AC-FT 69330000

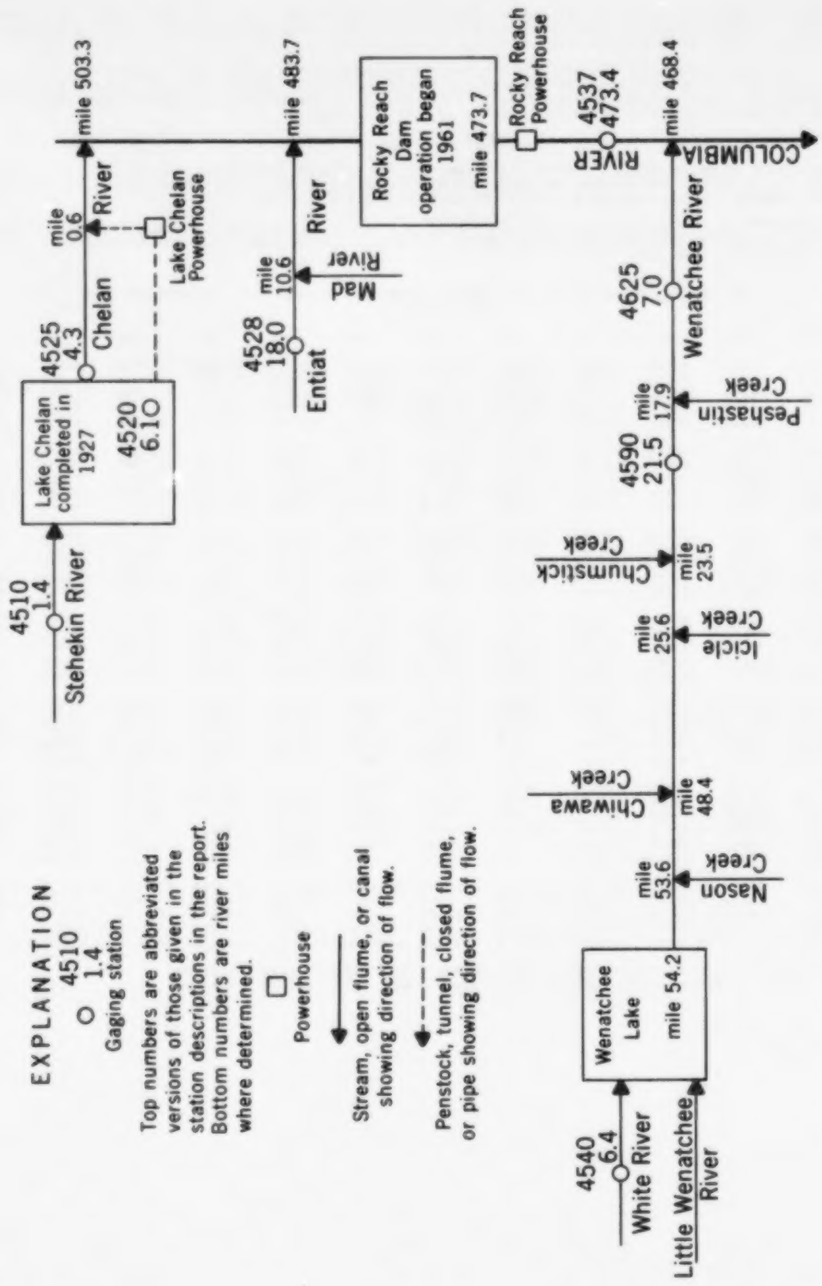
EXPLANATION
4510
1.4
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
4510
1.4
Stehekin River
Lake Chelan completed in 1927
4520
6.10
4525
4.3
Chelan
mile 0.6
River
Lake Chelan Powerhouse
mile 503.3
4528
18.0
Entiat
mile 10.6
Mad River
River
mile 483.7
Rocky Reach Dam operation began 1961
mile 473.7
Rocky Reach Powerhouse
4537
473.4
mile 468.4
COLUMBIA
RIVER
4540
6.4
White River
Little Wenatchee River
Wenatchee Lake
mile 54.2
mile 53.6
Nason Creek
mile 48.4
Chiwawa Creek
mile 25.6
Icicle Creek
mile 23.5
Chumstick Creek
4590
21.5
mile 17.9
Peshastin Creek
4625
7.0
Wenatchee River

Figure 12. Gaging stations in Columbia River basin from Chelan to Wenatchee Rivers.

12451000 STEHEKIN RIVER AT STEHEKIN, WA

LOCATION.--Lat 48°19'47", long 120°41'26", in NE¼SE¼ sec.26, T.33 N., R.17 E., Chelan County, Hydrologic Unit 17020009, Lake Chelan National Recreation Area, on left bank 1,100 ft (335 m) upstream from Boulder Creek, 1.4 mi (2.3 km) upstream from Lake Chelan, and 2.1 mi (3.4 km) northwest of Stehekin.

DRAINAGE AREA.--321 mi^2 (831 km^2), revised. Prior to 1979 published as 344 mi^2 (891 km^2).

PERIOD OF RECORD.--October 1910 to October 1915, October 1926 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 412: 1914. WSP 1316: 1911(M), 1914-15(M). WSP 1446: 1912(M). WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,098.5 ft (334.82 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1911, nonrecording gage 0.4 mi (0.6 km) upstream from mouth at Lake Chelan at different datums (datum change made June 13, 1911). Aug. 17, 1911, to Oct. 31, 1915, nonrecording gage 0.2 mi (0.3 km) downstream from Boulder Creek at different datum.

REMARKS.--Records good. No known regulation or diversion.

AVERAGE DISCHARGE.--59 years, 1,417 ft^3/s (40.13 m^3/s) 55.94 in/yr (1,421 mm/yr) 1,027,000 acre-ft/yr (1,270 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,900 ft^3/s (535 m^3/s) May 29, 1948, gage height, 29.00 ft (8.839 m), from rating curve extended above 11,000 ft^3/s (312 m^3/s) on basis of slope-area measurement of peak flow; minimum, 56 ft^3/s (1.59 m^3/s) Jan. 21, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,500 ft^3/s (184 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 5	2345	*7,470	212	*24.35	7.422

Minimum discharge, 151 ft^3/s (4.28 m^3/s) Nov. 27, gage height, 17.62 ft (5.371 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	367	332	175	590	300	436	465	4020	3420	2290	1200	826
2	363	320	233	570	310	427	470	5430	2910	2650	1160	1430
3	340	317	288	545	310	450	490	5270	2500	2630	1150	798
4	343	306	367	525	313	465	505	4810	2230	2050	1000	692
5	367	295	355	510	306	460	525	5670	2050	1770	917	668
6	414	288	324	460	295	455	550	6660	2020	1600	896	698
7	427	281	306	436	281	445	540	5400	2030	1830	896	784
8	409	271	295	380	275	441	540	4750	2340	2340	924	650
9	355	265	938	330	268	441	585	4100	3060	2640	966	600
10	367	255	1110	300	265	455	605	3540	3170	2540	1010	630
11	388	246	716	290	262	475	615	3640	3070	2200	1080	668
12	359	236	605	320	258	470	668	4580	3440	2020	1140	656
13	371	233	560	360	258	485	812	4450	3990	1960	1170	674
14	371	224	1100	390	255	470	1110	4300	4390	2110	1110	847
15	347	216	1460	440	255	450	1310	3590	4540	2040	987	770
16	320	224	980	432	252	436	1420	3120	4810	2160	931	734
17	324	221	896	401	249	441	1550	3240	4900	1990	1070	728
18	285	216	2390	367	255	427	1680	3680	3850	1910	1340	656
19	292	207	1930	351	252	427	2260	3730	3680	1810	959	686
20	271	202	1570	340	252	436	2850	3890	3750	1710	868	875
21	252	202	1310	347	243	432	2750	5260	3570	2030	777	645
22	252	207	1120	336	236	455	2930	4660	3290	2370	805	595
23	268	202	1000	328	233	495	3410	3670	2760	2380	833	620
24	265	196	924	332	233	480	3840	3030	2400	1880	791	500
25	475	193	840	328	233	475	3490	2610	2530	1750	704	450
26	465	178	777	317	252	475	3330	2500	2430	1720	656	420
27	645	160	728	290	384	470	3890	2400	2190	1710	764	440
28	525	165	686	260	475	470	5320	2310	2090	1650	710	460
29	441	160	650	250	470	475	5260	2510	2140	1460	590	440
30	392	170	630	260	---	465	3940	2600	2090	1270	570	460
31	355	---	615	280	---	465	---	3020	---	1180	550	---
TOTAL	11415	6988	25878	11665	8230	14149	57710	122440	91640	61650	28524	20100
MEAN	368	233	835	376	284	456	1924	3950	3055	1989	920	670
MAX	645	332	2390	590	475	495	5320	6660	4900	2650	1340	1430
MIN	252	160	175	250	233	427	465	2310	2020	1180	550	420
CFSM	1.15	.73	2.60	1.17	.89	1.42	5.99	12.3	9.52	6.20	2.87	2.09
IN.	1.32	.81	3.00	1.35	.95	1.64	6.69	14.19	10.62	7.14	3.31	2.33
AC-FT	22640	13860	51330	23140	16320	28060	114500	242900	181800	122300	56580	39870

CAL YR 1979 TOTAL 354927 MEAN 972 MAX 4700 MIN 148 CFSM 3. IN 41.13 AC-FT 704000
WTR YR 1980 TOTAL 460389 MEAN 1258 MAX 6660 MIN 160 CFSM 3.92 IN 53.35 AC-FT 913200

12452000 LAKE CHELAN AT CHELAN, WA

LOCATION.--Lat 47°50'11", long 120°03'37", near center of sec.15, T.27 N., R.22 E., Chelan County, Hydrologic Unit 17020009, on south shore of Lake Chelan at Lakeside, 2.1 mi (3.4 km) west of Chelan.

DRAINAGE AREA.--924 mi^2 (2,393 km^2).

PERIOD OF RECORD.--September 1897 to December 1899, January to June 1905 and December 1910 to September 1911 (fragmentary gage heights only); October 1911 to current year. Records of change in contents prior to October 1911, published in WSP 482 and 492 in conjunction with records for Chelan River near Chelan, have been found to be unreliable and should not be used. Month-end contents October 1911 to September 1950 published in WSP 1316, chemical analyses June 1971 to August 1972.

REVISED RECORDS.--WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1912. To convert to National Geodetic Vertical Datum of 1929, subtract 1.73 ft (0.527 m). Prior to Jan. 1, 1900, nonrecording gage at Lakeside about 1 mi (1.6 km) west of Chelan at datum 1,070.18 ft (326.191 m) National Geodetic Vertical Datum of 1912. Jan. 1 to June 30, 1905, nonrecording gage at upper highway bridge at Chelan at different datum. Dec. 5, 1910, to Nov. 13, 1927, nonrecording gage at Forest Service boat landing at Chelan at datum 1,076.07 ft (327.986 m) National Vertical Datum of 1912.

REMARKS.--Mean elevations for December 1-5 were provided by Public Utility District No. 1 of Chelan County. Reservoir is formed by low concrete dam at lake outlet completed Sept. 3, 1927. Usable capacity between elevations 1,079 (328.9 m) and 1,100 ft (335.3 m) 677,400 acre-ft (835 hm^3). Regulation between these elevations is allowed by stipulation of the Federal Power Commission. Water is used for power development. Elevation of lake maintained between 1,092 (332.8 m) and 1,100 ft (335.3 m) during period Aug. 16 to Sept. 15 for scenic effect and recreational purposes. Diversions for irrigation of about 6,280 acres (25 km^2) with an annual depletion of about 11,000 acre-ft (13.6 hm^3), 1946 estimated.

COOPERATION.--Gage-height record collected in cooperation with Public Utility District No. 1 of Chelan County.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,100.08 ft (335.304 m) Aug. 7, 1976, Aug. 4, 1978 (affected by seiche action): maximum contents, 678,700 acre-ft (837 hm^3) Aug. 4, 1978, elevation, 1,100.04 ft (335.292 m); minimum since completion of dam in 1927, 1,079.68 ft (329.086 m) Apr. 3, 4, 1937, Apr. 3, 1970, contents, 21,350 acre-ft (26.3 hm^3); minimum elevation, 1,076.78 ft (328.203 m), Jan. 27, 28, Dec. 2-5, 1898.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,100.06 ft (335.298 m) July 10 (affected by seiche action) maximum contents, 678,000 acre-ft (836 hm^3); July 10 elevation, 1,100.02 ft (335.286 m); minimum elevation, 1,081.14 ft (329.531 m) Apr. 12, 13, contents, 67,520 acre-ft (83.3 hm^3).

Capacity table (elevation in feet, and usable contents, in acre-feet)
(Based on data by the Pacific Northwest Coordination Agreement)

1,080	31,540	1,090	350,900	1,100	677,400
1,085	190,200	1,095	513,300		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1096.60	1094.17	1091.16	1089.92	1087.00	1084.29	1081.88	1085.92	1096.89	1099.72	1099.92	1098.92
2	1096.50	1094.09	1091.15	1089.82	1086.91	1084.20	1081.80	1086.40	1097.06	1099.76	1099.90	1098.93
3	1096.40	1094.04	1090.94	1089.75	1086.83	1084.16	1081.70	1086.94	1097.18	1099.86	1099.86	1098.86
4	1096.30	1093.96	1091.09	1089.69	1086.74	1084.06	1081.63	1087.42	1097.29	1099.80	1099.86	1098.80
5	1096.20	1093.87	1090.99	1089.60	1086.64	1084.00	1081.57	1087.93	1097.39	1099.76	1099.81	1098.72
6	1096.12	1093.80	1090.86	1089.50	1086.56	1083.92	1081.50	1088.55	1097.48	1099.73	1099.78	1098.68
7	1096.05	1093.70	1090.72	1089.38	1086.44	1083.84	1081.43	1089.09	1097.56	1099.73	1099.73	1098.64
8	1095.92	1093.58	1090.57	1089.28	1086.33	1083.77	1081.35	1089.56	1097.66	1099.77	1099.70	1098.57
9	1095.84	1093.47	1090.58	1089.19	1086.24	1083.69	1081.31	1090.08	1097.83	1099.89	1099.69	1098.51
10	1095.75	1093.36	1090.60	1089.10	1086.13	1083.61	1081.26	1090.45	1098.02	1099.93	1099.65	1098.45
11	1095.65	1093.25	1090.51	1089.01	1086.02	1083.54	1081.19	1090.79	1098.19	1099.80	1099.65	1098.43
12	1095.56	1093.14	1090.51	1089.04	1085.90	1083.43	1081.15	1091.18	1098.39	1099.74	1099.64	1098.35
13	1095.47	1093.01	1090.37	1088.96	1085.79	1083.40	1081.15	1091.58	1098.52	1099.77	1099.65	1098.30
14	1095.38	1092.92	1090.44	1088.88	1085.65	1083.34	1081.19	1091.96	1098.84	1099.83	1099.67	1098.27
15	1095.30	1092.81	1090.33	1088.78	1085.56	1083.26	1081.27	1092.31	1099.13	1099.85	1099.71	1098.25
16	1095.17	1092.69	1090.33	1088.70	1085.47	1083.17	1081.36	1092.60	1099.46	1099.86	1099.63	1098.21
17	1095.10	1092.59	1090.32	1088.64	1085.38	1083.09	1081.49	1092.85	1099.78	1099.90	1099.57	1098.20
18	1095.00	1092.53	1090.37	1088.54	1085.31	1083.02	1081.61	1093.18	1099.63	1099.91	1099.58	1098.12
19	1094.96	1092.39	1090.40	1088.40	1085.22	1082.92	1081.75	1093.50	1099.44	1099.94	1099.56	1098.06
20	1094.90	1092.25	1090.54	1088.29	1085.14	1082.83	1081.97	1093.84	1099.51	1099.87	1099.56	1098.04
21	1094.78	1092.15	1090.59	1088.19	1085.02	1082.77	1082.19	1094.23	1099.55	1099.87	1099.50	1097.98
22	1094.70	1092.06	1090.55	1088.09	1084.90	1082.69	1082.41	1094.64	1099.50	1099.90	1099.46	1097.93
23	1094.65	1091.98	1090.46	1087.97	1084.80	1082.64	1082.69	1094.97	1099.45	1099.90	1099.42	1097.86
24	1094.60	1091.87	1090.44	1087.88	1084.69	1082.53	1083.06	1095.28	1099.50	1099.79	1099.40	1097.80
25	1094.60	1091.76	1090.39	1087.78	1084.60	1082.44	1083.39	1095.51	1099.62	1099.81	1099.30	1097.73
26	1094.56	1091.66	1090.32	1087.65	1084.53	1082.35	1083.72	1095.75	1099.74	1099.83	1099.27	1097.68
27	1094.54	1091.54	1090.25	1087.55	1084.46	1082.29	1084.07	1095.95	1099.81	1099.87	1099.25	1097.63
28	1094.50	1091.44	1090.19	1087.41	1084.41	1082.20	1084.54	1096.13	1099.73	1099.90	1099.18	1097.57
29	1094.43	1091.34	1090.12	1087.30	1084.34	1082.16	1085.15	1096.28	1099.72	1099.91	1099.08	1097.50
30	1094.33	1091.23	1090.03	1087.18	---	1082.06	1085.56	1096.45	1099.70	1099.91	1099.03	1097.48
31	1094.25	---	1089.98	1087.08	---	1081.95	---	1096.67	---	1099.90	1098.97	---
MEAN	1095.29	1092.76	1090.52	1088.60	1085.62	1083.15	1082.21	1092.19	1098.72	1099.84	1099.55	1098.22
MAX	1096.60	1094.17	1091.16	1089.92	1087.00	1084.29	1085.56	1096.67	1099.81	1099.94	1099.92	1098.93
MIN	1094.25	1091.23	1089.98	1087.08	1084.34	1081.95	1081.15	1085.92	1096.89	1099.72	1098.97	1097.48
†	488,000	388,400	349,600	255,900	168,800	92,300	214,500	570,600	666,800	675,100	643,500	593,500
‡	-78,300	-99,600	-38,800	-93,700	-87,100	-76,500	+122,200	+356,100	+96,200	+8,300	-31,600	-50,000

CAL YR 1979: MEAN 1091.92 MAX 1099.96 MIN 1082.92 ‡ -34,300
WTR YR 1980: MEAN 1092.25 MAX 1099.94 MIN 1081.15 ‡ +27,200

† Acre-feet, at 2400 hours, on last day of month.
‡ Change in contents, in acre-feet.

12452500 CHELAN RIVER AT CHELAN, WA

LOCATION.--Lat 47°50'05", long 120°00'43", in S½SE¼ sec.13, T.27 N., R.22 E., Chelan County, Hydrologic Unit 17020009, near right bank in forebay upstream from control dam at outlet of Lake Chelan, 0.4 mi (0.6 km) south of Chelan, and at mile 4.3 (6.9 km).

DRAINAGE AREA.--924 mi² (2,393 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1903 to current year. Published as "below Chelan Lake" 1904-05. Adjusted records for October 1903 to September 1911, published in WSP 482, 492, and 870 are unreliable and should not be used.

REVISED RECORDS.--WSP 482: 1904-13. WSP 612: 1924. WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and concrete dam. Datum of gage is at mean sea level, datum of 1912. To convert to National Geodetic Vertical Datum of 1929, subtract 1.62 ft (0.494 m). Prior to Jan. 7, 1927, nonrecording gage at site 800 ft (244 m) downstream and Jan. 7 to Sept. 30, 1927, nonrecording gage about 500 to 1,000 ft (152 to 305 m) downstream at same datum. Oct. 1, 1927, to Nov. 10, 1928, nonrecording gage and Nov. 11, 1928, to Mar. 19, 1939, water-stage recorder at sites 2.5 mi (4.0 km) downstream at same datum.

REMARKS.--Water-discharge records good. Discharge for Oct. 1-June 16, June 24-26, July 2, 7-8, 13-17, 20-21, and July 25-Sept. 30 completely furnished by Public Utility District No. 1 of Chelan County. Discharge for June 17-23, 27-30, July 1, 3-6, 9-12, 18-19, and 22-24 partially furnished by Public Utility District No. 1 of Chelan County. Unmeasured water that is diverted for irrigation above station is a small percentage of total runoff. Chelan County Public Utility District No. 1 diverts water at Chelan to develop about 40,000 KW and to irrigate 900 acres (3.6 km²) near Chelan. This quantity is included in records of daily discharge. Diversions for irrigation of about 6,280 acres (25 km²), depletion 11,000 acre-ft (13.6 hm³) 1964 estimate. Flow regulated by Lake Chelan (see sta 12452000).

COOPERATION.--Records of water used for power and irrigation furnished by the Public Utility District No. 1 of Chelan County.

AVERAGE DISCHARGE.--76 years (water years 1905-80), 2,055 ft³/s (58.20 m³/s) 30.20 in/yr (767 mm/yr), 1,490,000 acre-ft (1,840 hm³/yr), adjusted for storage since October 1911.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 18,400 ft³/s (521 m³/s) June 3, 1968; no flow part of day Jan. 30, 1917, when lake outlet was blocked with ice, and at other times owing to artificial regulation.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 10,200 ft³/s (289 m³/s) June 18; minimum daily, 2.5 ft³/s (0.071 m³/s) Apr. 24-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1810	1510	1900	2110	2110	2160	2090	18	1940	2310	1560	1510
2	1810	1510	1900	2130	2100	2160	2090	18	1920	2210	1540	1510
3	1810	1760	1900	2080	2120	2160	2090	18	1930	3260	1540	1520
4	1810	1890	1900	2100	2100	2170	2100	18	1840	3980	1510	1520
5	1810	1840	1900	2120	2100	2150	2080	18	1770	3020	1530	1520
6	1810	1850	1900	2110	2090	2140	2100	897	1810	2550	1470	1520
7	1810	1830	1900	2100	2100	2150	2070	826	1820	2180	1470	1520
8	1810	1830	1890	2030	2100	2150	2070	776	1820	2180	1470	1520
9	1810	1810	1890	2180	2100	2150	2080	806	1980	2320	1470	1520
10	1810	1800	1890	2150	2180	2140	2080	516	2090	4610	1470	1520
11	1810	1810	1930	2140	2180	2130	1850	16	2090	4220	1470	1520
12	1810	1800	1890	2130	2190	2120	1470	526	2080	2440	1490	1520
13	1810	1840	1900	2110	2200	2110	1510	816	2040	2170	1480	1520
14	1810	1870	1900	2110	2180	2120	945	815	2030	2170	1480	1520
15	1810	1940	1900	2180	2180	2130	705	775	2110	2160	1470	1520
16	1640	1940	1900	2130	2190	2130	707	765	2020	2160	1470	1520
17	1640	1880	1900	2110	2190	2130	707	765	5850	2150	1470	1510
18	1510	1860	1890	2100	2180	2120	707	775	10200	2680	1480	1510
19	1510	1830	1900	2200	2180	2110	707	785	5800	2660	1320	1510
20	1510	1900	1950	2080	2180	2120	717	795	4440	2170	1390	1510
21	1510	1900	2110	2030	2180	2120	717	815	5520	2160	1520	1510
22	1510	1910	2100	2080	2120	2120	727	835	5410	2550	1520	1510
23	1510	1930	2030	2100	2140	2120	312	815	3670	5280	1520	1510
24	1510	1910	2110	2100	2170	2110	2.5	475	2150	2380	1520	1510
25	1510	1910	2100	2100	2160	2110	2.5	135	2090	1530	1520	1510
26	1510	1880	2160	2100	2160	2100	2.5	45	2110	1560	1520	1510
27	1510	1910	2180	2100	2160	2120	2.5	675	3100	1520	1510	1510
28	1510	1890	2130	2150	2070	2120	2.5	1430	3820	1520	1510	1510
29	1510	1920	2080	2170	2080	2100	2.5	1330	3190	1540	1510	1510
30	1550	1900	2120	2130	---	2100	18	1160	2930	1550	1510	1510
31	1510	---	2110	2100	---	2090	---	862	---	1570	1510	---
TOTAL	51610	55360	61260	65560	62190	65960	32664.0	19321	91570	76760	46220	45440
MEAN	1665	1845	1976	2115	2144	2128	1089	623	3052	2476	1491	1515
MAX	1810	1940	2180	2200	2200	2170	2100	1430	10200	5280	1560	1520
MIN	1510	1510	1890	2030	2070	2090	2.5	16	1770	1520	1320	1510
AC-FT	102400	109800	121500	130000	123400	130800	64790	38320	181600	152300	91680	90130
†	-78,300	-99,600	-38,800	-93,700	-87,100	-76,500	+122,200	+356,100	+96,200	+8,300	-31,600	-50,000
MEAN‡	392	171	1,345	590	631	883	3,143	6,414	4,669	2,612	977	674
CFSM‡	0.42	0.19	1.46	0.64	0.68	0.96	3.40	6.94	5.05	2.83	1.06	0.73
IN‡	0.49	0.23	1.68	0.74	0.74	1.10	3.80	8.01	5.64	3.26	1.22	0.81
AC-FT‡	24,100	10,200	82,700	36,300	36,300	54,300	187,000	394,400	277,800	160,600	60,080	40,130

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CAL YR 1979:  TOTAL  497,732   MEAN   1,364   MAX   2,650   MIN  12   AC-FT  987,300
    DO.....:  MEAN‡    1,316   CFSM‡   1.42   IN‡   19.35   AC-FT‡   953,000
WTR YR 1980:  TOTAL  673,915   MEAN   1,841   MAX  10,200   MIN   2.5 AC-FT 1,337,000
    DO.....:  MEAN‡    1,879   CFSM‡   2.03   IN‡   27.69   AC-FT‡ 1,364,000
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† Change in contents, in acre-feet, in Lake Chelan.
‡ Adjusted for change in contents, in Lake Chelan.

12452500 CHELAN RIVER AT CHELAN, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962-72, 1975 to June 1980 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

QUALITY WATER DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT , 1979										
16...	1030	1640	53	7.6	16.5	4	1.0	9.7	.02	.020
NOV										
27...	0950	1910	56	7.3	7.0	4	2.0	10.7	.06	.060
DEC										
18...	1045	1890	50	7.5	6.0	8	2.0	11.5	.04	.020
JAN , 1980										
22...	1200	2080	50	7.8	3.4	4	2.0	13.2	.05	.020
FEB										
26...	1000	2160	48	7.2	4.8	4	2.0	12.6	.08	.060
MAR										
25...	0830	2110	41	7.4	6.5	4	3.0	11.9	.04	.060
APR										
15...	0830	705	53	7.6	10.4	4	2.0	11.1	.05	.040
MAY										
13...	0915	816	52	7.7	15.3	4	1.0	10.1	.04	.000
JUN										
17...	0940	5850	39	7.6	17.3	8	7.0	9.6	.07	.010

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979									
16...	.02	.35	.37	.39	1.7	.040	.12	.000	.00
NOV									
27...	.07	.55	.61	.67	2.9	.000	.00	.010	.03
DEC									
18...	.02	.50	.52	.56	2.4	.010	.03	.000	.00
JAN , 1980									
22...	.02	.61	.63	.68	3.0	.000	.00	.000	.00
FEB									
26...	.07	.09	.15	.23	1.0	.010	.03	.000	.00
MAR									
25...	.07	.58	.64	.68	3.0	.010	.03	.000	.00
APR									
15...	.05	.64	.68	.73	3.2	.010	.03	.050	.15
MAY									
13...	.00	.29	.29	.33	1.4	.020	.06	.010	.03
JUN									
17...	.01	.27	.28	.35	1.5	.010	.03	.020	.06

12452800 ENTIAT RIVER NEAR ARDENVOIR, WA

LOCATION.--Lat 47°49'07", long 120°25'19", in NE¼NE¼ sec.27, T.27 N., R.19 E., Chelan County, Hydrologic Unit 17020010, on left bank 0.5 mi (0.8 km) downstream from Stormy Creek, 6.0 mi (9.7 km) northwest of Ardenvoir, and at mile 18.0 (29.0 km).

DRAINAGE AREA.--203 mi^2 (526 km^2).

PERIOD OF RECORD.--September 1957 to current year. Water temperatures July 1968 to September 1970.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,560.97 ft (475.784 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No regulation or diversion.

AVERAGE DISCHARGE.--23 years, 384 ft^3/s (10.87 m^3/s) 25.69 in/yr (653 mm/yr), 278,200 acre-ft/yr (343 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,430 ft^3/s (182 m^3/s) June 10, 1972, gage height, 8.98 ft (2.737 m); minimum daily, 25 ft^3/s (0.71 m^3/s) Dec. 17, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,070 ft^3/s (58.6 m^3/s) May 6, gage height, 5.58 ft (1.701 m); minimum discharge, 44 ft^3/s (1.25 m^3/s) Nov. 27-29, gage height, 0.84 ft (0.256 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	80	61	143	80	142	137	1420	1070	680	221	104
2	63	76	55	138	80	142	136	1610	1050	710	218	140
3	62	81	61	130	90	148	138	1670	952	734	208	116
4	60	81	93	116	98	148	139	1630	860	652	196	106
5	60	83	127	110	93	145	146	1750	800	577	187	102
6	59	80	124	90	91	140	147	2000	805	538	182	100
7	59	77	105	80	94	138	142	1920	780	534	181	100
8	60	75	94	70	89	136	141	1760	780	566	171	99
9	59	72	98	70	88	136	153	1580	860	623	174	95
10	58	70	117	75	86	139	153	1400	928	619	174	93
11	58	68	88	80	82	142	155	1280	965	566	178	91
12	57	67	106	90	79	140	165	1290	1000	505	181	92
13	57	63	100	102	80	147	191	1350	1100	464	183	102
14	57	59	131	112	78	142	248	1380	1270	456	179	137
15	58	57	208	118	75	136	279	1320	1330	440	169	112
16	57	66	147	118	76	130	298	1230	1420	439	162	104
17	58	75	138	130	80	132	337	1210	1490	436	158	99
18	58	73	262	100	80	130	361	1260	1350	407	191	97
19	65	65	290	105	80	130	440	1320	1290	391	161	94
20	64	58	261	110	82	131	539	1320	1250	361	150	121
21	61	60	238	110	78	130	579	1420	1190	362	142	101
22	60	57	217	115	75	135	647	1470	1090	383	137	96
23	67	57	198	110	72	142	751	1360	982	396	134	93
24	71	67	199	120	76	139	879	1210	886	351	133	91
25	115	64	184	100	74	139	911	1080	845	317	126	90
26	124	60	175	80	84	140	898	1040	807	300	121	88
27	132	46	167	70	131	139	996	981	744	287	118	87
28	119	44	159	60	175	138	1450	937	703	280	115	86
29	98	44	155	58	156	144	1630	932	696	269	110	86
30	89	50	150	56	---	140	1480	947	685	248	106	87
31	85	---	147	58	---	139	---	1000	---	230	103	---
TOTAL	2214	1975	4655	3024	2602	4299	14666	42077	29978	14121	4969	3009
MEAN	71.4	65.8	150	97.5	89.7	139	489	1357	999	456	160	100
MAX	132	83	290	143	175	148	1630	2000	1490	734	221	140
MIN	57	44	55	56	72	130	136	932	685	230	103	86
CFSM	.35	.32	.74	.48	.44	.69	2.41	6.69	4.92	2.25	.79	.49
IN.	.41	.36	.85	.55	.48	.79	2.69	7.71	5.49	2.59	.91	.55
AC-FT	4390	3920	9230	6000	5160	8530	29090	83460	59460	28010	9860	5970

CAL YR 1979 TOTAL 83056 MEAN 228 MAX 1500 MIN 37 CFSM 1.12 IN 15.22 AC-FT 164700
WTR YR 1980 TOTAL 127589 MEAN 349 MAX 2000 MIN 44 CFSM 1.72 IN 23.38 AC-FT 253100

12452990 ENTIAT RIVER NEAR ENTIAT, WA

LOCATION.--Lat 47°39'48", long 120°14'58", in NW¼SE¼ sec.18, T.25 N., R.21 E., Chelan County, Hydrologic Unit 17020010, at road bridge 1.2 mi (1.9 km) west of Entiat High School and at mile 1.4 (2.3 km).

DRAINAGE AREA.--419 mi^2 (1,085 km^2).

PERIOD OF RECORD.--Water years 1959-70, 1972, 1975 to June 1980 (discontinued).

REMARKS.--Water discharge from rating; discharge value is fair. Prior to October 1974 published as 12453000. Prior to September 1970 samples taken at site 1.7 mi (2.7 km) upstream.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1979 16...	0945	52	112	7.9	10.4	4	1.0	11.6
NOV 27...	0900	26	125	7.5	.5	4	2.0	14.7
DEC 18...	1000	320	80	7.6	1.4	13	5.0	14.4
JAN , 1980 22...	1115	142	93	7.6	.1	8	1.0	16.0
FEB 26...	0830	70	96	7.3	3.5	4	2.0	13.5
MAR 25...	0845	245	118	7.8	4.0	8	2.0	13.1
APR 15...	0740	530	75	7.8	7.0	17	5.0	12.0
MAY 13...	0830	1600	43	7.6	7.2	17	2.0	12.0

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979 16...	.22	.020	.02	.000	.00	.010	.03
NOV 27...	.34	.040	.05	.000	.00	.010	.03
DEC 18...	.11	.000	.00	.010	.03	.000	.00
JAN , 1980 22...	.17	.010	.01	.010	.03	.000	.00
FEB 26...	.19	.060	.07	.020	.06	.000	.00
MAR 25...	.10	.080	.10	.010	.03	.000	.00
APR 15...	.03	.040	.05	.030	.09	.030	.09
MAY 13...	.06	.000	.00	.020	.06	.010	.03

12453700 COLUMBIA RIVER AT ROCKY REACH DAM, WA

LOCATION.--Lat 47°31'28", long 120°18'04", in SW¼NW¼ sec.2, T.23 N., R.20 E., Chelan County, Hydrologic Unit 17020010, on right bank 0.5 mi (0.8 km) downstream from Rocky Reach Dam, 1.5 mi (2.4 km) downstream from Swakane Creek, 7.4 mi (11.9 km) north of Wenatchee, and at mile 473.4 (761.7 km).

DRAINAGE AREA.--87,800 mi^2 (227,400 km^2), approximately.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Auxiliary water-stage recorder 1.9 mi (3.1 km) downstream from base gage at same datum.

REMARKS.--Records good. Discharge for Oct. 3-11, 14, 15, 27; Nov. 21; Dec. 6, 10, 18, 19; Feb. 5, 12; Mar. 4; Apr. 4, 16, 17, 24, 26, 27, 29; May 3, 8, 10, 13, 15-21; May 23-June 3; Aug. 14; Sept. 9-10 and 13-14 was provided by Corps of Engineers N.P.D. Reservoir Control Center. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km^2) in the United States and an additional 35,000 acres (142 km^2) in Canada.

AVERAGE DISCHARGE.--20 years, 116,900 ft^3/s (3,311 m^3/s) 84,690,000 acre-ft/yr (104,400 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 535,000 ft^3/s (15,200 m^3/s) June 10, 1961, elevation, about 635.50 ft (193.700 m); minimum daily, 25,100 ft^3/s (711 m^3/s) Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 246,000 ft^3/s (6,970 m^3/s) June 19, elevation 624.57 ft (190.369 m); minimum daily, 36,100 ft^3/s (1,020 m^3/s) Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89100	98100	106000	70900	104000	50100	84400	116000	165000	112000	85700	73500
2	93700	83300	76700	98700	90800	50700	87400	104000	157000	135000	106000	83900
3	84500	76700	109000	114000	78200	91400	87300	112000	144000	145000	79500	82300
4	77200	77300	106000	117000	97400	95300	78300	90500	146000	133000	98000	88500
5	72600	94600	100000	125000	112000	94000	75600	126000	158000	128000	98300	80500
6	58900	92000	82500	118000	114000	102000	77900	121000	157000	116000	87600	67000
7	53100	91300	86500	141000	112000	82800	104000	139000	150000	121000	88300	58200
8	72700	108000	76400	126000	101000	72000	83800	138000	163000	108000	95000	73700
9	82700	111000	79400	108000	95500	60400	80700	124000	168000	120000	89000	73200
10	84000	99300	117000	104000	90100	98300	72200	106000	157000	122000	63600	74600
11	83600	92900	135000	104000	124000	102000	70500	98400	166000	120000	101000	70100
12	94800	100000	108000	85000	123000	109000	57600	128000	164000	113000	107000	68400
13	78000	112000	106000	85600	124000	104000	41900	142000	154000	102000	104000	49100
14	54500	106000	89600	103000	142000	107000	81800	141000	155000	114000	112000	48400
15	88900	132000	89200	86500	133000	107000	80000	132000	155000	118000	107000	73000
16	95200	104000	93600	79900	112000	82100	64300	124000	169000	110000	92200	77000
17	96500	98000	101000	96100	101000	86900	75700	99500	195000	119000	66000	75900
18	104000	83700	84600	122000	95100	95900	64000	81400	197000	113000	90200	78900
19	99400	119000	77500	106000	96900	93200	52800	118000	190000	117000	91500	89700
20	73700	125000	90900	93200	95000	71900	46900	109000	129000	113000	91100	52300
21	57400	117000	98600	102000	89900	74400	57100	127000	174000	119000	90700	42400
22	92200	92400	98000	98400	80600	53300	53800	147000	162000	106000	94600	68600
23	72500	96300	98100	92700	81700	61200	48400	138000	174000	107000	75900	58800
24	84700	90000	77500	107000	65000	72700	59800	109000	174000	108000	70100	77900
25	76500	81000	59600	106000	99600	71500	79600	108000	164000	108000	113000	72400
26	71200	107000	75900	128000	89800	85300	50300	108000	167000	82200	104000	70900
27	53100	113000	101000	117000	78300	86900	54000	108000	137000	76900	99500	58900
28	52700	111000	118000	132000	78400	76600	106000	140000	149000	99300	92100	36100
29	76400	108000	107000	132000	59600	69000	119000	123000	143000	96700	96900	77800
30	80700	108000	87900	143000	---	66500	101000	148000	142000	101000	86800	60100
31	100000	---	91200	128000	---	97900	---	167000	---	99500	60100	---
TOTAL	2454500	3027900	2927700	3370000	2863900	2571300	2196100	3772800	4884000	3482600	2836700	2062100
MEAN	79180	100900	94440	108700	98760	82950	73200	121700	162800	112300	91510	68740
MAX	104000	132000	135000	143000	142000	109000	119000	167000	197000	145000	113000	89700
MIN	52700	76700	59600	70900	59600	50100	41900	81400	137000	76900	60100	36100
AC-FT	4868000	6006000	5807000	6684000	5681000	5100000	4356000	7483000	9687000	6908000	5627000	4090000

CAL YR 1979 TOTAL 35153600 MEAN 96310 MAX 160000 MIN 50600 AC-FT 69730000
WTR YR 1980 TOTAL 36449600 MEAN 99590 MAX 197000 MIN 36100 AC-FT 72300000

12454000 WHITE RIVER NEAR PLAIN, WA

LOCATION.--Lat 47°52'27", long 120°52'09", in NE¼NE¼ sec.5, T.27 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, on left bank 200 ft (61 m) downstream from Forest Service bridge, 1.2 mi (1.9 km) downstream from Sears Creek, 12.5 mi (20.1 km) northwest of Plain, and at mile 6.4 (10.3 km).

DRAINAGE AREA.--150 mi^2 (388 km^2).

PERIOD OF RECORD.--May 1911 to April 1912, May to September 1912 (monthly discharge only), July to August 1913, October 1913 to March 1914 (monthly discharge only), April to September 1914, August 1954 to current year. Published as "near Chiwaukum" 1911-14. Water temperatures October 1970 to June 1971.

REVISED RECORDS.--WSP 1316: 1914.

GAGE.--Water-stage recorder. Datum of gage is 1,881.92 ft (573.609 m) National Geodetic Vertical Datum of 1929. May 1911 to September 1914, nonrecording gage at same site at different datum.

REMARKS.--Records good. No regulation or diversion.

AVERAGE DISCHARGE.--28 years (water years 1912, 1914, 1955-80). 803 ft^3/s (22.74 m^3/s), 72.70 in/yr (1,847 mm/yr), 581,800 acre-ft/yr (717 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,890 ft^3/s (167 m^3/s) June 17, 1974, gage height, 13.56 ft (4.133 m); maximum gage height, 13.87 ft (4.228 m) June 2, 1968; minimum discharge, 47 ft^3/s (1.33 m^3/s) Nov. 27, 1979, gage height, 2.15 ft (0.655 m), result of freezeup upstream of gage.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft^3/s (99.1 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 18	0830	*3,760	106	*10.70	3.261
May 6	0030	3,550	101	10.33	3.149

Minimum discharge, 47 ft^3/s (1.33 m^3/s) Nov. 27, gage height, 2.15 ft (0.655 m), result of freezeup upstream of gage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	199	86	503	240	586	298	2150	1840	1360	572	277
2	145	191	80	469	275	543	298	2700	1500	1560	572	554
3	135	188	103	438	352	528	314	2490	1250	1430	525	289
4	137	180	722	411	365	518	327	2400	1120	1150	465	238
5	150	177	439	401	317	493	343	2950	1040	1050	431	253
6	170	170	330	340	280	469	368	3110	1020	1030	384	268
7	180	162	309	300	235	448	352	2540	1070	1180	378	308
8	172	160	306	260	202	428	352	2310	1320	1420	397	259
9	157	150	730	230	180	411	394	2020	1630	1510	476	235
10	157	145	782	210	172	404	404	1800	1590	1360	503	238
11	162	137	565	220	166	404	421	1840	1550	1150	525	265
12	155	130	505	240	164	384	479	2220	1720	1100	536	268
13	155	126	488	270	161	381	629	2190	1900	1130	525	256
14	150	121	834	300	158	365	858	2080	2110	1130	507	289
15	130	114	1350	270	156	346	950	1750	2120	1080	462	277
16	119	128	954	260	156	330	962	1540	2430	1110	428	262
17	142	130	1060	270	153	330	1040	1620	2530	1040	459	277
18	108	126	3230	250	156	317	1080	1790	2040	1030	636	244
19	114	114	2400	260	156	308	1610	1820	1960	984	391	247
20	105	105	1900	260	161	308	1730	1870	2000	945	372	472
21	90	105	1480	253	150	301	1620	2280	1950	1090	343	259
22	92	103	1210	235	148	311	1700	2110	1800	1200	336	211
23	137	105	1040	229	145	320	1930	1730	1490	1190	359	241
24	155	103	930	244	145	304	2000	1480	1320	979	356	197
25	502	99	822	215	145	301	1810	1280	1580	906	311	175
26	363	86	746	195	191	308	1770	1270	1380	882	289	164
27	582	75	682	180	758	304	2180	1190	1220	866	320	169
28	381	70	629	180	946	298	2840	1170	1170	822	274	177
29	294	66	586	170	708	317	2590	1280	1230	727	205	169
30	254	75	550	170	---	304	2050	1440	1230	615	191	372
31	222	---	521	185	---	301	---	1680	---	561	186	---
TOTAL	5962	3840	26369	8418	7541	11670	33699	60100	48110	33587	12714	7910
MEAN	192	128	851	272	260	376	1123	1939	1604	1083	410	264
MAX	582	199	3230	503	946	586	2840	3110	2530	1560	636	554
MIN	90	66	80	170	145	298	298	1170	1020	561	186	164
CFSM	1.28	.85	5.67	1.81	1.73	2.51	7.49	12.9	10.7	7.22	2.73	1.76
IN.	1.48	.95	6.54	2.09	1.87	2.89	8.36	14.90	11.93	8.33	3.15	1.96
AC-FT	11830	7620	52300	16700	14960	23150	66840	119200	95430	66620	25220	15690

CAL YR 1979 TOTAL 210590 MEAN 577 MAX 3230 MIN 66 CFSM 3.85 IN 52.23 AC-FT 417700
WTR YR 1980 TOTAL 259920 MEAN 710 MAX 3230 MIN 66 CFSM 4.73 IN 64.46 AC-FT 515600

12457800 WENATCHEE RIVER NEAR LEAVENWORTH, WA

LOCATION.--Lat 47°40'25", long 120°34'00", T.25 N., R.17 E. (unsurveyed), Chelan County, Hydrologic Unit 17020011, at U.S. Highway 2 bridge 0.4 mi (0.6 km) upstream from Hatchery Creek, 6 mi (9.7 km) northwest of Leavenworth, and at mile 35.6 (57.3 km).

DRAINAGE AREA.--672 mi^3 (1,740 km^2).

PERIOD OF RECORD.--Water years 1959-70, 1977 to June 1980 (discontinued).

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1979								
16...	0815	353	48	7.0	10.6	13	1.0	9.8
NOV								
27...	0745	381	65	7.0	1.0	4	1.0	13.1
DEC								
18...	0850	6190	29	7.3	2.7	33	6.0	12.6
JAN , 1980								
22...	1000	E914	40	7.9	.1	13	1.0	15.3
FEB								
26...	0700	625	38	7.2	3.3	8	2.0	13.2
MAR								
25...	0720	1320	49	7.3	2.0	13	2.0	12.6
APR								
15...	0630	2860	33	7.3	4.5	25	4.0	12.2
MAY								
13...	0710	7890	30	7.6	6.1	17	1.0	11.8
JUN								
17...	0720	7500	27	7.5	8.8	21	4.0	10.4

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979							
16...	.02	.030	.04	.010	.03	.000	.00
NOV							
27...	.07	.040	.05	.000	.00	.010	.03
DEC							
18...	.12	.110	.13	.020	.06	.000	.00
JAN , 1980							
22...	.08	.010	.01	.000	.00	.010	.03
FEB							
26...	.10	.060	.07	.010	.03	.000	.00
MAR							
25...	.08	.060	.07	.020	.06	.010	.03
APR							
15...	.09	.020	.02	.020	.06	.040	.12
MAY							
13...	.07	.000	.00	.020	.06	.010	.03
JUN							
17...	.06	.010	.01	.010	.03	.020	.06

12459000 WENATCHEE RIVER AT PESHASTIN, WA

LOCATION.--Lat 47°35'08", long 120°36'46", in SE¼SW¼ sec.8, T.24 N., R.18 E., Chelan County, Hydrologic Unit 17020011, on right bank, 1.0 mi (1.6 km) northwest of Peshastin, 3.5 mi (5.6 km) upstream from Peshastin Creek, 4.1 mi (6.6 km) downstream from Icicle Creek, and at mile 21.5 (34.6 km).

DRAINAGE AREA.--1,000 mi^2 (2,600 km^2), approximately.

PERIOD OF RECORD.--October 1928 to February 1929 (monthly discharge only), March 1929 to current year.

REVISED RECORDS.--WSP 1316: 1929-32(M).

GAGE.--Water-stage recorder. Datum of gage is 1,028.04 ft (313.347 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 24, 1932, nonrecording gage at site 1.2 mi (1.9 km) downstream at different datum.

REMARKS.--Records excellent. Numerous diversions upstream for irrigation of an estimated 3,200 acres (13 km^2) upstream from station. Diversion from Icicle Creek 5.7 mi (9.2 km) upstream from mouth is used for irrigation of a substantial part of the 2,000 acres (89 km^2) irrigated downstream from station. Bonneville Power Administration gage-height telemeter at station.

AVERAGE DISCHARGE.--52 years, 3,105 ft^3/s (87.93 m^3/s), 2,250,000 acre-ft/yr (2,770 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,300 ft^3/s (915 m^3/s) May 28, 1948, gage height, 15.88 ft (4.840 m); minimum, 183 ft^3/s (5.18 m^3/s) Oct. 14, 1939; minimum gage height, 1.24 ft (0.378 m) Nov. 1, 1952; minimum daily discharge, 270 ft^3/s (7.65 m^3/s) Oct. 2, 1929, Nov. 30, 1936, Dec. 1, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,600 ft^3/s (385 m^3/s) May 6, gage height, 9.56 ft (2.914 m); minimum, 320 ft^3/s (9.06 m^3/s) Nov. 29, gage height, 1.50 ft (0.457 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	513	887	444	1920	1000	2260	1510	9530	6670	4430	1520	673
2	498	808	465	1840	1000	2110	1490	10800	6570	4700	1470	1100
3	476	779	501	1760	1150	2050	1500	11100	5840	4960	1430	1170
4	463	760	885	1660	1330	2040	1540	10600	5200	4420	1350	986
5	456	751	1750	1600	1230	1980	1630	11600	4700	3930	1280	867
6	446	723	1610	1450	1140	1880	1760	13300	4470	3630	1210	805
7	446	693	1510	1330	1050	1810	1730	12300	4600	3540	1170	770
8	454	670	1390	1300	954	1740	1700	11100	4740	3750	1110	750
9	440	644	1460	1250	903	1700	1890	10000	5700	4110	1140	709
10	435	618	2460	1200	866	1690	1980	9000	6190	4220	1150	679
11	429	599	2340	1250	834	1720	1960	8260	6290	3840	1170	662
12	429	571	2160	1300	813	1720	2040	8870	6460	3510	1180	653
13	427	553	1930	1400	802	1770	2330	9410	6660	3270	1180	687
14	426	534	2250	1460	786	1730	2920	9250	7420	3230	1170	864
15	421	516	5700	1370	763	1640	3550	8490	7680	3120	1120	833
16	417	523	5700	1320	756	1570	3800	7400	8120	3080	1050	766
17	418	536	4590	1260	771	1540	4050	7000	8950	3000	1010	730
18	440	539	7840	1160	777	1510	4270	7300	8180	2850	1250	700
19	473	531	8760	1100	778	1480	5100	7810	7580	2730	1280	679
20	498	510	7900	1050	802	1490	6600	8070	7350	2580	1130	938
21	483	500	6520	1150	793	1500	6970	9100	7270	2560	1010	1140
22	464	511	5270	1100	761	1560	7020	9230	6860	2660	921	1020
23	481	503	4310	1050	741	1670	7590	8250	6150	2810	882	919
24	509	500	3760	1050	732	1620	8300	7180	5430	2660	861	861
25	771	495	3290	1100	731	1580	8220	6290	5740	2400	822	789
26	979	484	2930	950	787	1560	7800	5930	6010	2230	782	739
27	1180	436	2640	800	1200	1550	8320	5600	5190	2120	763	703
28	1510	362	2420	700	2060	1530	10500	5220	4780	2030	818	697
29	1320	342	2240	640	2400	1580	11700	5150	4590	1930	815	697
30	1140	379	2100	660	---	1590	10300	5270	4440	1770	737	686
31	995	---	2010	750	---	1540	---	5060	---	1630	694	---
TOTAL	18917	17257	99215	37930	28790	52710	140150	264430	185710	97700	33475	24272
MEAN	610	575	3200	1224	993	1700	4672	8530	6190	3152	1080	809
MAX	1510	887	8760	1920	2400	2260	11700	13300	8950	4960	1520	1170
MIN	417	342	444	640	731	1480	1490	5150	4440	1630	694	653
AC-FT	37520	34230	196800	75230	57100	104600	278000	524500	368400	193800	66400	48140

CAL YR 1979 TOTAL 810828 MEAN 2221 MAX 10800 MIN 342 AC-FT 1608000
WTR YR 1980 TOTAL 1000550 MEAN 2734 MAX 13300 MIN 342 AC-FT 1985000

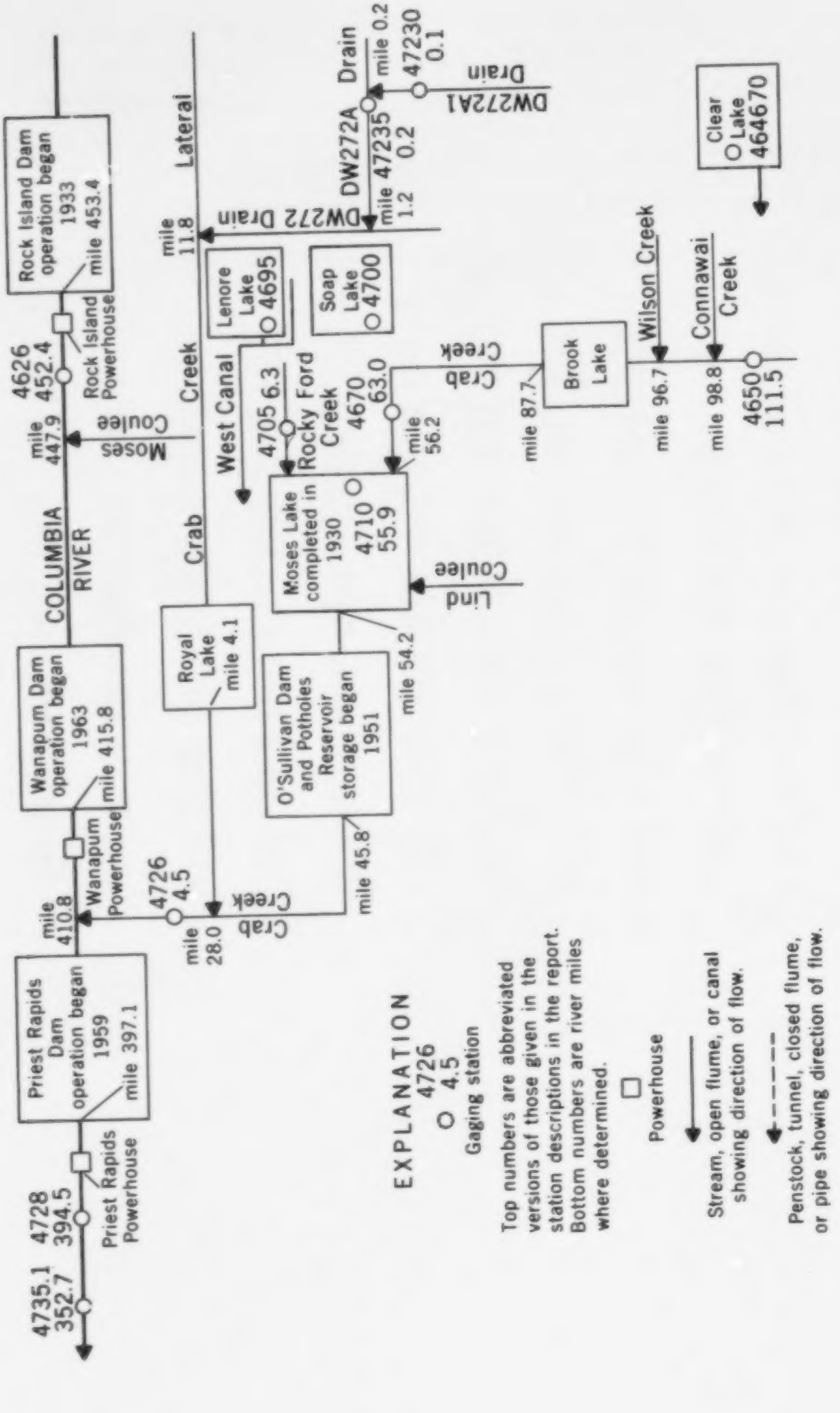
Rock Island Dam operation began 1933 mile 453.4
4626 452.4
Rock Island Powerhouse
mile 447.9
Moses Coulee
COLUMBIA RIVER
Wanapum Dam operation began 1963 mile 415.8
Wanapum Powerhouse
mile 410.8
4726 4.5
Priest Rapids Dam operation began 1959 mile 397.1
Priest Rapids Powerhouse
4728 394.5
4735.1 352.7
Lateral
mile 11.8
Crab Creek
West Canal
Royal Lake mile 4.1
mile 28.0
Crab Creek
DW272 Drain
DW272A Drain
mile 1.2 47235 0.2
mile 0.2 47230 0.1
DW272A1 Drain
Lenore Lake 4695
Soap Lake 4700
4705 6.3
Rocky Ford Creek 4670 63.0
mile 56.2
Moses Lake completed in 1930 4710 55.9
Lind Coulee
mile 54.2
O'Sullivan Dam and Potholes Reservoir storage began 1951
mile 45.8
Crab Creek
Brook Lake
mile 87.7
Wilson Creek
mile 96.7
Connawai Creek
mile 98.8
4650 111.5
Clear Lake 464670
EXPLANATION
4726
4.5
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 13. Gaging stations in Columbia River basin from Rock Island Dam to Ringold gage.

12462500 WENATCHEE RIVER AT MONITOR, WA

LOCATION.--Lat 47°29'58", long 120°25'24", in NE¼SW¼ sec.11, T.23 N., R.19 E., Chelan County, Hydrologic Unit 17020011, on right bank 1.0 mi (1.6 km) north of Monitor, 3.5 mi (5.6 km) downstream from Mission Creek, and at mile 7.0 (11.3 km).

DRAINAGE AREA.--1,301 mi^2 (3,370 km^2).

PERIOD OF RECORD.--August to November 1897, October 1962 to current year. Published as "near Wenatchee" 1897.

GAGE.--Water-stage recorder. Altitude of gage is 680 ft (207 m), from topographic map. Aug. 7 to Nov. 7, 1897, nonrecording gage 1 mi (1.6 km) downstream at different datum.

REMARKS.--Records excellent. No regulation. Diversions for irrigation of about 25,000 acres (100 km^2) above station. Chelan County Public Utility District No. 1 gage height telemeter at station.

AVERAGE DISCHARGE.--18 years, 3,352 ft^3/s; (94.93 m^3/s) 2,429,000 acre-ft/yr (2,990 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,200 ft^3/s (827 m^3/s) Dec. 4, 1975, gage height, 27.14 ft (8.272 m); minimum, 357 ft^3/s (10.1 m^3/s) Oct. 12, 1979, gage height, 17.01 ft (5.185 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,800 ft^3/s (419 m^3/s) May 6, gage height, 23.70 ft (7.224 m); minimum, 357 ft^3/s (10.1 m^3/s) Oct. 12, gage height, 17.01 ft (5.185 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	465	998	493	2140	1050	2870	1870	10700	6940	4540	1420	564
2	442	906	488	2050	1150	2640	1840	12000	6910	4770	1360	871
3	428	880	537	1960	1200	2560	1840	12300	6120	5050	1320	1100
4	413	854	810	1850	1310	2560	1890	11700	5430	4570	1250	908
5	399	854	1860	1780	1200	2510	2000	12600	4920	4050	1160	790
6	392	828	1750	1600	1140	2370	2170	14600	4650	3710	1090	726
7	385	789	1640	1390	1120	2250	2140	13400	4650	3580	1050	689
8	392	763	1530	1350	1080	2130	2040	12200	4900	3740	986	672
9	378	736	1540	1300	1040	2070	2310	11000	5880	4100	1010	630
10	378	708	2480	1250	1010	2050	2490	9850	6420	4260	1010	611
11	371	687	2600	1300	979	2100	2430	8980	6530	3920	1030	597
12	411	655	2400	1350	955	2110	2500	9600	6710	3550	1040	595
13	480	631	2150	1480	944	2170	2870	10200	6890	3290	1040	652
14	477	615	2230	1620	929	2120	3630	10000	7700	3220	1030	856
15	474	594	5400	1520	897	2000	4340	9160	8050	3120	1000	846
16	468	585	6370	1490	890	1900	4560	8030	8490	3060	932	760
17	466	608	5060	1430	911	1850	4800	7490	9480	2990	891	715
18	482	610	8380	1300	922	1810	5040	7880	8690	2830	1050	679
19	520	607	9690	1100	917	1770	5900	8350	7970	2710	1220	661
20	549	590	8740	1100	946	1790	7590	8630	7680	2570	1040	835
21	551	565	7200	1220	942	1800	8050	9800	7610	2510	934	1140
22	527	577	5830	1130	912	1900	8070	9910	7170	2590	837	1040
23	531	578	4790	1100	891	2080	8710	8800	6450	2740	793	924
24	617	572	4170	1100	878	2030	9580	7600	5680	2650	773	875
25	813	565	3640	1130	877	1970	9380	6620	5870	2370	742	810
26	1040	554	3230	1000	986	1950	8850	6240	6370	2190	695	762
27	1180	514	2930	809	1550	1940	9360	5900	5460	2070	665	723
28	1590	444	2690	700	2710	1900	11800	5480	5020	1970	689	701
29	1450	391	2500	640	3090	1940	13100	5380	4790	1860	731	685
30	1250	442	2340	670	---	1970	11600	5490	4610	1700	644	658
31	1110	---	2240	850	---	1920	---	6090	---	1540	599	---
TOTAL	19429	19700	107708	40700	33426	65030	162750	285980	194040	97820	30031	23075
MEAN	627	657	3474	1313	1153	2098	5425	9225	6468	3155	969	769
MAX	1590	998	9690	2140	3090	2870	13100	14600	9480	5050	1420	1140
MIN	371	391	488	640	877	1770	1840	5380	4610	1540	599	564
AC-FT	38540	39070	213600	80730	66300	129000	322800	567200	384900	194000	59570	45770

CAL YR 1979 TOTAL 854556 MEAN 2341 MAX 11500 MIN 371 AC-FT 1695000
WTR YR 1980 TOTAL 1079689 MEAN 2950 MAX 14600 MIN 371 AC-FT 2142000

12462520 WENATCHEE RIVER AT WENATCHEE, WA

LOCATION.--Lat 47°27'32", long 120°20'07", in SE¼NW¼ sec.28, T.23 N., R.20 E., Chelan County, Hydrologic Unit 17020011, at bridge on U.S. Highway 2, 1.3 mi (2.1 km) north of Wenatchee, and at mile 1.1 (1.8 km).

DRAINAGE AREA.--1,327 mi² (3,437 km²).

PERIOD OF RECORD.--Water years, 1960-63, 1964-66 (partial-record station), 1967-70, 1972, 1975 to June 1980 (discontinued).

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT , 1979											
16...	0700	465	100	9.3	13.8	13	1.0	10.0	39	4	8.1
NOV											
27...	0650	535	95	8.4	3.0	4	1.0	15.5	39	0	8.1
DEC											
18...	0745	7760	44	7.5	2.5	33	12	13.3	17	--	3.8
JAN , 1980											
22...	0830	1080	85	8.3	.1	17	2.0	15.4	31	0	6.4
FEB											
25...	1445	880	92	8.5	6.0	8	2.0	13.5	36	2	8.0
MAR											
24...	1500	2020	78	8.2	8.0	22	4.0	13.1	43	5	9.5
APR											
14...	1430	3710	90	8.1	10.4	29	9.0	11.7	36	--	8.0
MAY											
12...	1500	9590	58	8.7	11.3	17	4.0	11.5	15	--	3.7
JUN											
16...	1600	8490	35	8.0	12.8	25	4.0	11.4	13	1	3.1

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT , 1979										
16...	4.6	3.6	16	.2	1.3	35	.0	8.7	1.3	.17
NOV										
27...	4.7	3.5	15	.2	1.1	39	.2	4.6	1.4	.21
DEC										
18...	2.0	1.5	14	.1	.9	19	.9	—	.6	.11
JAN , 1980										
22...	3.8	3.0	16	.2	1.1	31	.2	3.6	1.3	.25
FEB										
25...	3.9	3.2	15	.2	1.1	34	.1	7.7	2.6	.32
MAR										
24...	4.9	3.8	15	.2	1.3	38	.3	9.5	1.2	.14
APR										
14...	4.0	2.6	13	.1	1.1	38	.4	2.8	.7	.07
MAY										
12...	1.6	2.2	22	.2	.9	17	.0	3.3	.3	.09
JUN										
16...	1.3	1.3	16	.1	.7	12	.1	4.8	.1	.03

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979										
16...	.010	.01	.45	.46	.63	2.7	.010	.03	.010	.03
NOV										
27...	.020	.02	--	--	--	--	.010	.03	--	--
DEC										
18...	.100	.12	.59	.69	.80	3.5	.040	.12	.000	.00
JAN , 1980										
22...	.010	.01	.31	.32	.57	2.5	.000	.00	.010	.03
FEB										
25...	.030	.04	--	--	--	--	.020	.06	.020	.06
MAR										
24...	.040	.05	.63	.67	.81	3.5	.030	.09	.010	.03
APR										
14...	.000	.00	.35	.35	.42	1.8	.040	.12	.010	.03
MAY										
12...	.020	.02	.98	1.00	1.0	4.8	.020	.06	.000	.00
JUN										
16...	.000	.00	.28	.28	.31	1.3	.020	.06	.000	.00

12462520 WENATCHEE RIVER AT WENATCHEE, WA--Continued

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT , 1979											
16...	0700	2	30	<1	0	0	0	.1	0	0	<3
NOV											
27...	0650	1	20	<1	0	0	0	.4	0	0	3
DEC											
18...	0745	3	20	<1	20	0	0	.4	0	0	4
JAN , 1980											
22...	0830	2	30	<1	20	0	0	.2	0	0	4
FEB											
25...	1445	3	20	2	20	2	0	.5	0	0	4
MAR											
24...	1500	1	20	<1	10	2	2	.6	0	0	5
APR											
14...	1430	1	10	<1	0	3	11	.1	0	0	5
MAY											
12...	1500	1	20	<1	0	1	4	.1	0	0	<3
JUN											
16...	1600	0	10	<1	0	3	0	.1	0	0	<3

12462600 COLUMBIA RIVER BELOW ROCK ISLAND DAM, WA

LOCATION.--Lat 47°19'57", long 120°04'48", in NE¼NW¼ sec.9, T.21 N., R.22 E., Douglas County, Hydrologic Unit 17020010, on left bank 1.0 mi (1.6 km) downstream from Rock Island Dam, 2.0 mi (3.2 km) downstream from Rock Island Creek, 12 mi (19.3 km) southeast of Wenatchee, and at mile 452.4 (727.9 km).

DRAINAGE AREA.--89,400 mi^2 (231,500 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January to December 1910 (gage heights only), May 1913 to December 1916, October 1930 to current year. Published as "at Wenatchee" January 1910 to December 1916, and as "at Trinidad" October 1930 to May 1961.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1916, nonrecording gage 1.2 mi (1.9 km) upstream from highway bridge at Wenatchee, at mile 466.3 (750.3 km), at datum 583 ft (177.7 m) National Geodetic Vetical Datum of 1929. Jan. 1 to Dec. 31, 1916, nonrecording gage on pier of highway bridge at Wenatchee, at mile 465.1 (748.3 km), at datum 579.30 ft (176.571 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1930 to May 31, 1961, water-stage recorder 0.5 mi (0.8 km) southwest of Trinidad, at mile 441.7 (710.7 km), at datum 499.3 ft (152.19 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Since May 21, 1963, auxiliary water-stage recorder 2.0 mi (3.2 km) downstream at same datum.

REMARKS.--Water-discharge records good. Discharge for Oct. 1 to Sept. 30 was provided by Corps of Engineers N.P.D. Reservoir Control Center. Flow regulated bv nine major reservoirs and numerous small reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km^2) in the United States and an additional 35,000 acres (142 km^2) in Canada.

AVERAGE DISCHARGE.--53 years (water years 1914-16, 1931-80), 121,000 ft^3/s (3,427 m^3/s) 87,660,000 acre-ft/yr (108,100 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft^3/s (19,600 m^3/s) June 12, 1948, gage height, 59.35 ft (18.090 m) site and datum then in use; minimum, 4,120 ft^3/s (117 m^3/s) Feb. 10, 1932, gage height, 11.40 ft (3.475 m), site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft^3/s (21,000 m^3/s), from floodmarks at Wenatchee.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 197,000 ft^3/s (5,580 m^3/s) June 18; minimum daily, 36,800 ft^3/s (1,040 m^3/s) Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84900	97600	102000	74100	103000	52300	89100	124000	173000	115000	88000	71400
2	91400	83500	73800	101000	88700	53200	91300	115000	162000	133000	102000	83800
3	84100	78300	108000	115000	74800	91400	89400	125000	151000	143000	81200	85800
4	78200	73300	101000	115000	98800	95600	79200	105000	144000	132000	95600	90900
5	71500	91100	100000	122000	109000	94300	77500	135000	158000	126000	101000	79100
6	59300	94000	82800	120000	114000	102000	77600	135000	155000	116000	86400	70800
7	53900	89300	84700	139000	109000	83400	107000	148000	150000	120000	87300	54600
8	73000	105000	78100	126000	99100	71800	85500	146000	165000	106000	91900	76300
9	82300	111000	77600	108000	91900	63100	86800	134000	169000	119000	88900	73600
10	84000	96800	115000	102000	86900	97800	72000	115000	160000	120000	65400	73500
11	82100	87000	135000	103000	120000	102000	71700	105000	170000	117000	99500	68600
12	94800	103000	107000	83400	122000	110000	59500	131000	160000	112000	105000	67800
13	75000	109000	107000	87100	122000	105000	49600	147000	157000	102000	101000	50900
14	55400	106000	89800	98100	140000	108000	85400	147000	158000	113000	111000	49200
15	89400	132000	95800	87200	131000	104000	79200	139000	155000	115000	106000	72800
16	87100	98500	98000	75600	109000	83600	68200	129000	176000	110000	90200	77400
17	98300	99400	100000	94200	99600	90900	79100	104000	194000	116000	68700	74000
18	102000	85900	91600	121000	92900	96700	67200	80500	197000	108000	88800	77900
19	102000	116000	86400	107000	95300	90600	57000	119000	192000	116000	88700	88200
20	76000	122000	95100	90400	92700	75500	55300	117000	190000	110000	88800	57400
21	57500	118000	102000	99200	89600	71400	65000	134000	178000	118000	89500	47600
22	86400	86100	102000	97800	77600	55000	57000	154000	166000	107000	89900	68200
23	75900	95000	99300	88500	80000	61800	61100	147000	169000	106000	75800	62700
24	83600	89100	81500	103000	62900	73700	68800	118000	163000	109000	69700	78100
25	80000	79800	57800	108000	96400	71700	91300	116000	166000	105000	108000	74700
26	67400	103000	75600	124000	88700	88100	58400	115000	167000	83300	97700	73600
27	55100	111000	102000	116000	79500	88400	61300	124000	136000	77500	95100	63900
28	53200	109000	119000	129000	78400	82700	111000	146000	147000	107000	85900	36800
29	78500	108000	108000	131000	65800	66000	127000	128000	141000	98500	95300	75200
30	82500	105000	89500	140000	---	69000	114000	152000	141000	99900	86400	63000
31	99100	---	88200	128000	---	98700	---	170000	---	99700	65900	---
TOTAL	2443900	2982700	2953600	3333600	2818600	2597700	2342500	4004500	4910000	3459900	2794600	2087800
MEAN	78840	99420	95280	107500	97190	83800	78080	129200	163700	111600	90150	69590
MAX	102000	132000	135000	140000	140000	110000	127000	170000	197000	143000	111000	90900
MIN	53200	73300	57800	74100	62900	52300	49600	80500	136000	77500	65400	36800
AC-FT	4847000	5916000	5858000	6612000	5591000	5153000	4646000	7943000	9739000	6863000	5543000	4141000

CAL YR 1979 TOTAL 35860300 MEAN 98250 MAX 156000 MIN 51900 AC-FT 71130000
WTR YR 1980 TOTAL 36729400 MEAN 100400 MAX 197000 MIN 36800 AC-FT 72850000

12462600 COLUMBIA RIVER BELOW ROCK ISLAND DAM, WA--Continued

WATER QUALITY RECORDS

LOCATION.--Samples taken at site 1.6 mi (2.6 km) downstream from gaging station, 2.6 mi (4.2 km) downstream from Rock Island Dam, 13 mi (21 km) southeast of Wenatchee, and at mi 450.9 (725.5 km).

PERIOD OF RECORD.--Water years 1972, 1975 to June 1980 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)
OCT , 1979 15...	1430	E89400	140	8.3	16.9	8	1.0
NOV 26...	1435	83100	128	8.3	10.0	4	2.0
DEC 17...	1530	113000	160	8.0	6.5	8	3.0
JAN , 1980 21...	1600	106000	167	8.4	2.5	13	3.0
FEB 25...	1330	120000	164	8.2	5.5	4	4.0
MAR 24...	1400	79600	200	8.2	10.3	13	4.0
APR 14...	1330	137000	138	8.6	8.6	13	3.0
MAY 12...	1400	189000	148	8.1	12.4	21	6.0
JUN 16...	1450	245000	96	8.0	14.9	25	4.0

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT , 1979 15...	10.2	.15	.010	.01	.040	.12	.060
NOV 26...	12.3	.27	.020	.02	.050	.15	.010
DEC 17...	12.2	.17	.000	.00	.030	.09	.000
JAN , 1980 21...	14.5	.16	.010	.01	.040	.12	.000
FEB 25...	15.0	.21	.010	.01	.010	.03	.040
MAR 24...	14.4	.32	.020	.02	.040	.12	.010
APR 14...	14.4	.17	.040	.05	.050	.15	.040
MAY 12...	12.5	.11	.000	.00	.050	.15	.010
JUN 16...	11.6	.08	.100	.12	.030	.09	.010

12464670 CLEAR LAKE NEAR MEDICAL LAKE, WA

LOCATION.--Lat 47°32'30", long 117°41'21", in NW¼SW¼ sec.30, T.24 N., R.41 E., Spokane County, Hydrologic Unit 17020013, on north shore 2.2 mi (3.5 km) south of town of Medical Lake.

DRAINAGE AREA.--9.51 mi^2 (24.63 km^2), including that of West Medical Lake.

PERIOD OF RECORD.--September 1958 to September 1980 (fragmentary) (discontinued). Chemical analyses April 1973 to October 1973.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 2,298.6 ft (700.61 m) National Geodetic Vertical Datum of 1929.

REMARKS.--No known regulation. Some pumping for domestic use and irrigation. Gage heights to top of ice, Jan. 10, Jan. 22 to Feb. 15 and Mar. 1-11.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 44.50 ft (13.564 m) Apr. 2, 1974; minimum observed, 38.74 ft (11.808 m) Oct. 8, 11, 18, 1968, Oct. 16, 19, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 41.75 ft (12.725 m) May 31; minimum observed, 40.07 ft (12.213 m) Nov. 13, 16.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	40.13	---	40.35	40.64	41.15	41.51	---	---	---	40.99	---
2	40.25	---	---	---	---	---	---	---	---	41.57	---	40.47
3	---	---	---	---	---	---	---	41.65	41.73	---	---	---
4	---	---	40.19	40.37	---	41.19	41.49	---	---	---	---	---
5	40.23	---	---	---	40.67	---	---	---	---	41.51	40.87	40.39
6	---	---	40.18	---	---	---	---	41.65	41.71	---	---	---
7	---	40.09	40.19	---	---	41.23	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	41.45	---	---
9	40.19	40.09	---	---	40.71	---	41.59	---	---	---	40.81	---
10	---	---	---	40.45	---	---	---	41.65	41.69	---	---	40.34
11	---	---	40.19	---	---	41.27	---	---	---	---	---	---
12	40.17	---	---	40.51	40.71	---	41.61	---	---	41.43	40.75	40.23
13	---	40.07	---	---	---	---	---	41.65	---	---	---	---
14	---	---	---	---	---	41.33	---	---	41.73	---	---	---
15	40.15	---	40.20	40.55	40.75	---	41.65	---	---	41.39	40.69	---
16	40.15	40.07	---	---	---	---	---	---	---	---	---	40.29
17	---	---	---	---	---	---	---	---	41.71	---	---	---
18	---	---	40.25	40.63	---	41.39	41.65	---	---	---	---	---
19	40.21	---	---	---	40.79	---	---	---	---	41.29	40.67	40.29
20	---	40.09	---	---	---	---	---	41.69	41.69	---	---	---
21	---	---	40.27	---	---	41.43	---	---	---	---	---	---
22	---	---	---	40.64	40.93	---	41.65	---	---	41.23	40.59	---
23	40.17	40.13	---	---	---	---	---	41.67	---	---	---	40.21
24	---	---	---	---	---	41.43	---	---	---	---	---	40.19
25	40.19	---	---	40.64	---	41.43	---	---	41.67	---	---	---
26	---	---	40.33	---	---	---	41.41	---	---	41.13	---	---
27	---	40.09	---	---	41.07	---	---	41.73	---	---	40.55	40.15
28	---	---	---	---	---	41.51	---	41.73	41.63	---	---	---
29	---	---	40.33	40.65	---	---	41.65	---	---	41.09	---	---
30	40.15	40.09	---	---	---	---	---	---	---	---	40.47	---
31	---	---	---	---	---	---	---	41.75	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

12465000 CRAB CREEK AT IRBY, WA

LOCATION.--Lat 47°21'38", long 118°50'56", in NW¼NW¼ sec.31, T.22 N., R.32 E., Lincoln County, Hydrologic Unit 17020013, on right bank 8 ft (2.4 m) upstream from highway bridge at Irby, 5.4 mi (8.7 km) downstream from Lake Creek, 7.5 mi (12.1 km) west of Odessa, and at mile 111.5 (179.4 km).

DRAINAGE AREA.--1,042 mi^2 (2,699 km^2).

PERIOD OF RECORD.--September 1942 to current year. Chemical analyses October 1961 to September 1962.

REVISED RECORDS.--WSP 1446: 1949-51. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,386.30 ft (422.544 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Pumpage from ground-water wells for irrigation has been on the increase above the station since 1964. No regulation.

AVERAGE DISCHARGE.--38 years, 74.7 ft^3/s (2.116 m^3/s), 54,120 acre-ft/yr (66.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,370 ft^3/s (237 m^3/s) Feb. 27, 1957, gage height, 11.94 ft (3.639 m); no flow several days during 1969, 1977, 1978, 1979, and 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft^3/s (8.5 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 21	0145	*2,730	77.3	*8.02	2.444
Feb. 27	2100	1,180	33.4	5.33	1.625

Minimum discharge, no flow part or all of each day Oct. 5-7, 11, 13-15, 18, 19, 26, Nov. 1-4, Dec. 25, 28, Jan. 6, 7, 9, 10, 22, and 25-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	1.1	3.1	1.2	5.0	433	97	41	36	24	17	6.9
2	2.6	.00	3.9	1.0	10	334	96	47	40	23	16	6.9
3	2.3	.00	3.6	.97	15	278	93	36	40	22	16	6.4
4	.64	.99	3.7	1.4	16	241	90	25	39	22	16	7.4
5	.28	3.7	3.5	1.7	18	212	89	22	36	22	16	6.9
6	.70	3.4	3.2	.37	20	183	87	25	36	22	16	6.9
7	.32	3.3	2.9	.10	20	167	86	24	33	23	15	6.4
8	.80	2.2	2.7	.06	20	157	88	23	32	23	15	6.4
9	3.3	2.9	2.6	.02	20	148	88	24	34	23	15	5.9
10	2.3	3.2	2.2	.04	20	142	86	24	33	23	15	6.4
11	1.2	3.3	1.7	.86	20	133	88	23	32	22	14	6.4
12	1.4	2.9	1.9	1.3	19	132	89	22	31	22	14	5.9
13	1.3	3.0	2.3	1.6	20	130	88	21	31	21	14	6.9
14	1.3	2.8	2.3	1.8	18	129	87	22	27	21	13	6.9
15	1.5	3.2	2.3	1.6	18	125	82	22	24	21	13	6.4
16	1.2	4.0	2.1	1.6	25	123	83	23	24	21	13	6.4
17	2.1	4.2	1.8	2.1	200	122	80	22	24	20	12	6.9
18	.66	3.0	2.3	1.2	500	118	78	24	24	20	12	7.4
19	1.1	2.6	1.9	.80	1940	116	77	28	24	20	12	6.9
20	2.0	2.2	1.4	.91	2540	118	79	28	24	20	11	7.4
21	4.1	2.8	1.2	.82	2240	114	77	28	23	19	10	6.9
22	4.1	3.6	1.2	.39	1120	112	75	28	24	19	10	6.9
23	4.0	4.4	1.1	.20	581	105	74	28	24	19	9.7	6.9
24	3.8	3.1	2.8	.15	398	106	71	28	24	19	9.1	6.9
25	2.1	3.1	2.3	.12	295	104	70	28	24	18	9.1	6.9
26	1.5	2.8	1.3	.10	369	102	68	34	25	18	9.1	6.4
27	2.9	2.7	1.1	.08	853	100	57	36	25	18	9.1	6.4
28	2.8	2.2	.51	.06	894	99	54	34	24	18	9.1	6.4
29	2.6	2.2	.73	.04	560	95	49	34	24	17	8.5	6.4
30	2.6	2.9	.60	.08	---	96	45	33	24	17	8.0	6.4
31	2.6	---	1.2	.80	---	99	---	33	---	17	6.9	---
TOTAL	63.10	81.79	65.44	23.47	12774.0	4673	2371	870	865	634	383.6	200.5
MEAN	2.04	2.73	2.11	.76	440	151	79.0	28.1	28.8	20.5	12.4	6.68
MAX	4.1	4.4	3.9	2.1	2540	433	97	47	40	24	17	7.4
MIN	.28	.00	.51	.02	5.0	95	45	21	23	17	6.9	5.9
AC-FT	125	162	130	47	25340	9270	4700	1730	1720	1260	761	398

CAL YR 1979 TOTAL 12176.23 MEAN 33.4 MAX 505 MIN .00 AC-FT 24150
WTR YR 1980 TOTAL 23004.90 MEAN 62.9 MAX 2540 MIN .00 AC-FT 45630

12467000 CRAB CREEK NEAR MOSES LAKE, WA

LOCATION.--Lat 47°11'22", long 119°15'53", in NW¼NE¼ sec.35, T.20 N., R.28 E., Grant County, Hydrologic Unit 17020015, on left bank at downstream side of highway bridge, 3 mi (4.8 km) upstream from Parker Horn, 4 mi (6.4 km) north of town of Moses Lake, and at mile 63.0 (101.4 km).

DRAINAGE AREA.--2,228 mi^2 (5,771 km^2), of which 219 mi^2 (567 km^2) in the vicinity of Long Lake Reservoir is noncontributing.

PERIOD OF RECORD.--September 1942 to current year, chemical analyses October 1961 to September 1962.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,070.39 ft (326.255 m) Water and Power Resources Service datum. Prior to July 14, 1956, at site 300 ft (91 m) upstream at same datum.

REMARKS.--Records excellent. Numerous small diversions for irrigation and domestic use above station. Most of natural flow from upper basin passes this station underground. No known regulation. Since 1952, return flow from irrigation on Columbia Basin project has increased runoff during summer months.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft^3/s (295 m^3/s), Feb. 28, 1957, gage height, 6.81 ft (2.076 m); no flow for several months each year prior to 1952, and part of each day Jan. 14, 15, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,300 ft^3/s (65.1 m^3/s) Feb. 29, gage height, 5.22 ft (1.591 m); minimum, 10 ft^3/s (0.28 m^3/s) Jan. 19, gage height, 1.76 ft (0.536 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	57	34	28	13	2150	107	65	64	60	77	82
2	76	57	35	25	15	1660	104	64	64	60	76	86
3	76	57	37	25	16	1270	104	63	62	60	76	84
4	76	56	43	23	16	988	102	62	62	61	75	86
5	74	55	41	23	16	800	101	60	62	63	75	87
6	74	52	43	21	18	651	102	58	63	63	76	87
7	75	49	39	19	18	546	100	55	62	65	76	85
8	74	49	35	17	18	476	97	55	63	64	76	84
9	73	47	34	16	18	420	102	57	63	63	75	84
10	75	46	32	17	18	372	100	56	65	65	77	85
11	75	46	31	19	18	335	94	54	65	67	78	83
12	73	45	30	21	18	282	93	51	68	67	77	85
13	70	44	29	23	17	250	93	49	76	66	78	99
14	72	43	30	25	16	234	91	49	72	66	78	94
15	69	43	28	25	14	209	88	50	72	68	77	89
16	70	44	25	24	15	195	84	49	70	68	78	87
17	70	46	28	27	16	186	84	48	73	68	80	86
18	75	43	30	36	29	183	80	49	69	69	85	86
19	82	40	29	21	31	169	83	54	68	70	83	87
20	73	39	27	19	49	161	95	53	68	70	81	88
21	70	39	27	18	35	157	91	53	67	72	81	86
22	69	39	25	17	27	148	84	54	66	72	81	86
23	66	41	25	16	24	139	78	51	66	72	80	87
24	67	42	34	15	436	132	76	54	66	73	81	86
25	75	41	31	14	944	128	75	53	66	73	79	86
26	64	39	28	14	836	128	75	67	65	74	80	84
27	63	36	26	13	760	126	74	69	63	74	80	84
28	62	33	25	12	1000	119	74	63	61	75	80	84
29	61	33	24	11	1830	122	73	61	60	73	80	82
30	62	33	24	11	---	113	67	66	59	74	80	81
31	61	---	26	12	---	110	---	75	---	76	81	---
TOTAL	2196	1334	955	607	6281	12959	2671	1767	1970	2111	2437	2580
MEAN	70.8	44.5	30.8	19.6	217	418	89.0	57.0	65.7	68.1	78.6	86.0
MAX	82	57	43	36	1830	2150	107	75	76	76	85	99
MIN	61	33	24	11	13	110	67	48	59	60	75	81
AC-FT	4360	2650	1890	1200	12460	25700	5300	3500	3910	4190	4830	5120

CAL YR 1979 TOTAL 16737.0 MEAN 45.9 MAX 111 MIN 9.0 AC-FT 33200
WTR YR 1980 TOTAL 37868.0 MEAN 103 MAX 2150 MIN 11 AC-FT 75110

12469500 LENORE LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat 47°30'52", long 119°30'06", in SE¼SW¼ sec.1, T.23 N., R.26 E., Grant County, Hydrologic Unit 17020014, on east shore 200 ft (61 m) downlake from outlet gate on Alkali Lake and 8.8 mi (14.2 km) north of town of Soap Lake.

DRAINAGE AREA.--367 mi^2 (951 km^2), of which 281 mi^2 (728 km^2) in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.--July 1936, March 1938 to December 1956 (fragmentary), January 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage 0.00 ft (0.000 m) Water and Power Resources Service datum. Prior to Dec. 20, 1956, nonrecording gages 800 ft (244 m) uplake at same datum.

REMARKS.--Some diversion from tributaries for irrigation, and pumping into and out of lake. Elevation for April. 28 was provided by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,087.73 ft (331.540 m) June 12, 1953; minimum, 1,072.72 ft (326.965 m) Jan. 2, 1959 (affected by wind).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,092.2 ft (332.90 m), from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,080.06 ft (329.202 m) May 1; minimum, 1,076.12 ft (328.001 m) Oct. 2, 8, 13, 14, 18.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1076.17	1076.22	1076.46	1076.94	1077.69	1078.66	1079.52	1080.05	1079.86	1079.25	1078.14	1076.87
2	1076.15	1076.22	1076.50	1076.96	1077.75	1078.70	1079.54	1080.03	1079.86	1079.23	1078.08	1076.87
3	1076.15	1076.23	1076.51	1076.97	1077.78	1078.74	1079.57	1079.99	1079.84	1079.19	1078.03	1076.85
4	1076.15	1076.25	1076.53	1076.99	1077.80	1078.77	1079.58	1079.96	1079.81	1079.14	1077.98	1076.85
5	1076.16	1076.26	1076.54	1076.99	1077.83	1078.80	1079.63	1079.94	1079.78	1079.09	1077.92	1076.85
6	1076.16	1076.26	1076.54	1077.01	1077.86	1078.83	1079.65	1079.93	1079.75	1079.04	1077.88	1076.86
7	1076.16	1076.27	1076.55	1077.04	1077.88	1078.86	1079.67	1079.89	1079.71	1079.01	1077.82	1076.84
8	1076.14	1076.28	1076.57	1077.06	1077.90	1078.90	1079.69	1079.86	1079.69	1078.99	1077.77	1076.80
9	1076.14	1076.28	1076.57	1077.10	1077.93	1078.93	1079.74	1079.84	1079.66	1078.95	1077.74	1076.81
10	1076.15	1076.28	1076.58	1077.12	1077.95	1078.96	1079.75	1079.81	1079.64	1078.91	1077.71	1076.80
11	1076.14	1076.29	1076.59	1077.15	1077.97	1078.99	1079.76	1079.79	1079.61	1078.86	1077.67	1076.77
12	1076.15	1076.29	1076.61	1077.22	1078.00	1079.02	1079.78	1079.76	1079.59	1078.81	1077.62	1076.74
13	1076.15	1076.30	1076.61	1077.24	1078.02	1079.08	1079.80	1079.75	1079.57	1078.78	1077.58	1076.75
14	1076.16	1076.30	1076.67	1077.29	1078.04	1079.10	1079.83	1079.73	1079.55	1078.73	1077.55	1076.75
15	1076.15	1076.31	1076.60	1077.33	1078.07	1079.12	1079.84	1079.69	1079.52	1078.68	1077.49	1076.73
16	1076.15	1076.32	1076.63	1077.36	1078.11	1079.14	1079.85	1079.68	1079.49	1078.63	1077.45	1076.71
17	1076.14	1076.33	1076.64	1077.40	1078.15	1079.17	1079.87	1079.65	1079.48	1078.58	1077.41	1076.69
18	1076.15	1076.34	1076.65	1077.41	1078.20	1079.20	1079.88	1079.63	1079.45	1078.55	1077.36	1076.67
19	1076.18	1076.34	1076.67	1077.42	1078.23	1079.22	1079.90	1079.62	1079.42	1078.49	1077.34	1076.66
20	1076.17	1076.34	1076.69	1077.44	1078.28	1079.26	1079.94	1079.62	1079.39	1078.46	1077.30	1076.62
21	1076.17	1076.35	1076.70	1077.46	1078.31	1079.29	1079.95	1079.64	1079.37	1078.42	1077.26	1076.59
22	1076.17	1076.37	1076.71	1077.48	1078.34	1079.33	1079.97	1079.65	1079.33	1078.39	1077.21	1076.56
23	1076.17	1076.40	1076.73	1077.50	1078.36	1079.34	1079.98	1079.64	1079.29	1078.34	1077.18	1076.56
24	1076.19	1076.41	1076.79	1077.53	1078.39	1079.36	---	1079.64	1079.28	1078.28	1077.11	1076.55
25	1076.24	1076.42	1076.81	1077.55	1078.41	1079.39	---	1079.64	1079.28	1078.24	1077.08	1076.54
26	1076.23	1076.42	1076.82	1077.57	1078.47	1079.41	---	1079.69	1079.27	1078.22	1077.05	1076.54
27	1076.23	1076.42	1076.84	1077.58	1078.54	1079.44	---	1079.77	1079.27	1078.20	1077.01	1076.54
28	1076.23	1076.42	1076.85	1077.60	1078.59	1079.46	1080.05	1079.80	1079.27	1078.19	1076.96	1076.54
29	1076.23	1076.43	1076.87	1077.62	1078.63	1079.48	---	1079.82	1079.26	1078.18	1076.93	1076.54
30	1076.22	1076.44	1076.88	1077.64	---	1079.48	1080.04	1079.85	1079.25	1078.18	1076.90	1076.52
31	1076.21	---	1076.92	1077.66	---	1079.51	---	1079.86	---	1078.17	1076.88	---
MEAN	1076.17	1076.33	1076.67	1077.31	1078.12	1079.13	---	1079.78	1079.52	1078.65	1077.46	1076.70
MAX	1076.24	1076.44	1076.92	1077.66	1078.63	1079.51	---	1080.05	1079.86	1079.25	1078.14	1076.87
MIN	1076.14	1076.22	1076.46	1076.94	1077.69	1078.66	---	1079.62	1079.25	1078.17	1076.88	1076.52

12470000 SOAP LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat 47°24'11", long 119°29'11", in NW¼SW¼ sec.18, T.22 N., R.27 E., Grant County, Hydrologic Unit 17020014, on east shore 0.9 mi (1.4 km) north of town of Soap Lake.

DRAINAGE AREA.--413 mi^2 (1,070 km^2), of which 281 mi^2 (728 km^2) in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.--May to August 1936, March 1938 to February 1957 (fragmentary), March 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage 0.00 ft (0.000 m), Water and Power Resources Service datum. Prior to Feb. 4, 1953, nonrecording gage at site 0.2 mi (0.3 km) uplake. Feb. 4, 1953, to June 8, 1954, nonrecording gage at site 1.5 mi (2.4 km) uplake and June 9, 1954, to June 21, 1957, water-stage recorder at site 0.2 mi (0.3 km) uplake.

REMARKS.--Some diversion from tributaries for irrigation. Water pumped from lake to reduce or limit high stages. Elevations for March 17, 23, 31, April 7, 13, 21, and 28, provided by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,079.20 ft (328.940 m) Jan. 28, 1953; minimum observed, 1,070.87 ft (326.401 m) Oct. 21, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,083.1 ft (330.13 m), from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 1,074.31 ft (327.450 m) April 21; minimum, 1,072.97 ft (327.041 m) Oct. 14, 17, 18.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1073.01	1073.06	1073.27	1073.51	1073.76	1074.14	---	1074.26	1074.25	1074.10	1073.77	1073.45
2	1073.00	1073.06	1073.30	1073.52	1073.79	1074.15	---	1074.26	1074.24	1074.10	1073.76	1073.45
3	1073.00	1073.07	1073.31	1073.52	1073.81	1074.15	---	1074.25	1074.24	1074.09	1073.73	1073.42
4	1073.00	1073.08	1073.32	1073.53	1073.81	1074.17	---	1074.25	1074.24	1074.08	1073.71	1073.43
5	1073.00	1073.10	1073.32	1073.54	1073.82	1074.17	---	1074.24	1074.23	1074.06	1073.69	1073.44
6	1073.00	1073.11	1073.33	1073.53	1073.83	1074.17	---	1074.25	1074.23	1074.04	1073.67	1073.45
7	1073.01	1073.11	1073.34	1073.53	1073.83	1074.17	1074.24	1074.24	1074.22	1074.05	1073.66	1073.43
8	1073.00	1073.11	1073.34	1073.54	1073.84	1074.18	---	1074.24	1074.22	1074.05	1073.65	1073.43
9	1072.99	1073.11	1073.35	1073.55	1073.84	1074.19	---	1074.24	1074.23	1074.04	1073.63	1073.43
10	1072.99	1073.12	1073.35	1073.56	1073.85	1074.19	---	1074.24	1074.22	1074.03	1073.63	1073.44
11	1072.99	1073.12	1073.35	1073.57	1073.85	1074.19	---	1074.23	1074.22	1074.02	1073.63	1073.44
12	1072.99	1073.12	1073.35	1073.61	1073.86	---	---	1074.23	1074.22	1074.01	1073.62	1073.44
13	1072.99	1073.13	1073.35	1073.63	1073.87	---	1074.27	1074.23	1074.23	1074.02	1073.62	1073.47
14	1072.99	1073.13	1073.36	1073.67	1073.87	---	---	1074.23	1074.23	1073.99	1073.61	1073.49
15	1073.00	1073.13	1073.37	1073.69	1073.89	---	---	1074.22	1074.23	1073.98	1073.60	1073.50
16	1073.00	1073.14	1073.36	1073.71	1073.91	---	---	1074.22	1074.23	1073.97	1073.56	1073.51
17	1072.99	1073.16	1073.36	1073.72	1073.92	1074.21	---	1074.21	1074.25	1073.94	1073.56	1073.51
18	1072.99	1073.16	1073.37	1073.72	1073.96	---	---	1074.21	1074.25	1073.94	1073.55	1073.51
19	1073.01	1073.17	1073.38	1073.72	1073.97	---	---	1074.21	1074.24	1073.93	1073.55	1073.48
20	1073.01	1073.17	1073.38	1073.72	1073.99	---	---	1074.21	1074.25	1073.92	1073.54	1073.51
21	1073.01	1073.17	1073.39	1073.72	1074.00	---	1074.31	1074.21	1074.25	1073.93	1073.54	1073.50
22	1073.01	1073.20	1073.39	1073.72	1074.00	---	---	1074.20	1074.24	1073.93	1073.44	1073.51
23	1073.01	1073.23	1073.40	1073.73	1074.01	1074.24	---	1074.18	1074.21	1073.91	1073.52	1073.48
24	1073.02	1073.24	1073.45	1073.72	1074.02	---	---	1074.16	1074.21	1073.89	1073.51	1073.52
25	1073.05	1073.24	1073.46	1073.73	1074.02	---	---	1074.15	1074.20	1073.89	1073.50	1073.52
26	1073.05	1073.24	1073.46	1073.73	1074.06	---	---	1074.18	1074.18	1073.87	1073.49	1073.53
27	1073.06	1073.25	1073.47	1073.73	1074.09	---	---	1074.23	1074.17	1073.86	1073.48	1073.54
28	1073.06	1073.25	1073.47	1073.73	1074.12	---	1074.28	1074.25	1074.15	1073.85	1073.46	1073.54
29	1073.05	1073.25	1073.48	1073.73	1074.13	---	---	1074.26	1074.14	1073.81	1073.46	1073.55
30	1073.06	1073.25	1073.49	1073.74	---	---	1074.26	1074.26	1074.11	1073.80	1073.44	1073.55
31	1073.06	---	1073.51	1073.74	---	1074.22	---	1074.26	---	1073.80	1073.46	---
MEAN	1073.01	1073.16	1073.38	1073.65	1073.92	---	---	1074.23	1074.22	1073.96	1073.58	1073.48
MAX	1073.06	1073.25	1073.51	1073.74	1074.13	---	---	1074.26	1074.25	1074.10	1073.77	1073.55
MIN	1072.99	1073.06	1073.27	1073.51	1073.76	---	---	1074.15	1074.11	1073.80	1073.44	1073.42

12470500 ROCKY FORD CREEK NEAR EPHRATA, WA

LOCATION.--Lat 47°18'46", long 119°26'40", in SW¼SW¼ sec.16, T.21 N., R.27 E., Grant County, Hydrologic Unit 17020015, on right bank 1.4 mi (2.3 km) downstream from source at Rocky Ford Springs, 5.0 mi (8.0 km) east of Ephrata, and 6.3 mi (10.1 km) upstream from mouth at Moses Lake.

DRAINAGE AREA.--458 mi^2 (1,186 km^2), of which 446 mi^2 (1,155 km^2) in vicinity of Banks and Soap Lakes is noncontributing.

PERIOD OF RECORD.--June 1909 to April 1910, July to December 1911, August 1942 to current year. Prior to January 1910, published as Upper Crab Creek near Ephrata.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,068.51 ft (325.682 m) Water and Power Resources Service datum. Prior to Jan. 1, 1912, nonrecording gages at sites 4.5 mi (7.2 km) to 5.5 mi (8.8 km) downstream at different datums. Aug. 19, 1942, to May 23, 1945, water-stage recorder at site 3.5 mi (5.6 km) downstream at datum 5.37 ft (1.637 m) lower. May 23, 1945, to June 15, 1977, water-stage recorder at site 0.2 mi (0.3 km) downstream at datum 3.53 ft (1.106 m) lower.

REMARKS.--Records good. Slight regulation by fish hatchery 1.5 mi (2.4 km) upstream.

AVERAGE DISCHARGE.--38 years (water years 1943-80), 77.7 ft^3/s (2.200 m^3/s), 56,290 acre-ft/yr (69.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 212 ft^3/s (6.00 m^3/s) Apr. 15-18, 1956, gage height, 3.58 ft (1.091 m) datum then in use; minimum observed, 20 ft^3/s (0.57 m^3/s) Aug. 13-18, 1911.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 82 ft^3/s (2.32 m^3/s) Sept. 8, gage height, 5.48 ft (1.670 m); minimum daily discharge, 44 ft^3/s (1.25 m^3/s) many days in February and March; minimum gage height, 4.99 ft (1.521 m) Feb. 13-19, 21, 22, and Mar. 3-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	67	63	56	46	45	46	50	65	69	75	76
2	66	67	63	56	45	45	46	51	65	69	75	77
3	66	67	63	55	44	44	47	51	66	67	75	78
4	66	67	63	54	44	44	47	52	66	64	75	78
5	66	67	62	54	44	44	47	52	66	64	75	78
6	66	68	61	54	44	44	47	52	67	64	75	80
7	66	67	61	53	44	44	47	53	69	65	76	81
8	66	67	62	53	44	44	47	53	69	66	76	79
9	66	67	61	52	44	44	47	54	69	66	77	77
10	66	67	60	52	44	44	47	55	73	67	77	77
11	66	67	60	52	44	44	47	55	68	67	77	78
12	67	66	60	52	44	45	48	56	61	67	77	78
13	67	66	60	52	44	46	49	56	61	68	77	78
14	67	67	64	52	44	45	49	57	61	69	77	78
15	68	66	62	52	44	45	49	57	62	69	77	78
16	68	66	60	51	44	45	49	58	63	69	77	79
17	67	66	60	51	44	45	49	58	64	69	77	80
18	67	66	60	50	44	45	49	59	64	70	77	79
19	67	66	60	50	44	46	49	59	65	70	76	80
20	67	66	59	50	45	46	49	59	66	70	76	81
21	68	65	59	50	44	46	49	59	66	71	76	80
22	67	66	58	49	44	46	49	60	67	72	75	80
23	68	65	58	49	44	46	49	60	67	72	75	80
24	68	65	58	49	44	46	49	61	67	72	75	80
25	68	65	58	49	44	46	49	61	67	72	75	80
26	68	64	58	48	45	46	50	63	68	73	76	80
27	67	63	58	47	46	46	50	63	68	73	77	81
28	67	63	57	47	45	46	50	63	68	74	77	81
29	68	63	57	47	45	46	50	64	69	74	77	81
30	67	63	56	46	---	46	50	64	69	74	77	80
31	67	---	56	46	---	46	---	64	---	75	77	---
TOTAL	2074	1975	1857	1578	1285	1400	1450	1779	1986	2151	2361	2373
MEAN	66.9	65.8	59.9	50.9	44.3	45.2	48.3	57.4	66.2	69.4	76.2	79.1
MAX	68	68	64	56	46	46	50	64	73	75	77	81
MIN	66	63	56	46	44	44	46	50	61	64	75	76
AC-FT	4110	3920	3680	3130	2550	2780	2880	3530	3940	4270	4680	4710

CAL YR 1979 TOTAL 20906 MEAN 57.3 MAX 72 MIN 43 AC-FT 41470
WTR YR 1980 TOTAL 22269 MEAN 60.8 MAX 81 MIN 44 AC-FT 44170

12471000 MOSES LAKE AT MOSES LAKE, WA

LOCATION.--Lat 47°06'11", long 119°19'02", in SW¼SW¼ sec.28, T.19 N., R.28 E., Grant County, Hydrologic Unit 17020015, on east shore 35 ft (11 m) north of U.S. Highway 10 and Interstate 90, 1.7 mi (2.7 km) upstream from outlet, 2.7 mi (4.3 km) southwest of town of Moses Lake, and at mile 55.9 (89.9 km).

DRAINAGE AREA.--3,080 mi^2 (7,977 km^2), of which 665 mi^2 (1,722 km^2) is noncontributing.

PERIOD OF RECORD.--June 1909 to September 1914 and November 1936 to September 1945 (fragmentary), October 1945 to current year. Published as "at Neppel" 1912-14.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 0.00 ft (0.000 m) Water and Power Resources Service datum. Prior to Apr. 3, 1910, nonrecording gage at site 0.6 mi (1.0 km) northeast at different datum. Apr. 3, 1910, to Sept. 30, 1914, and Nov. 19, 1936, to Nov. 24, 1944, nonrecording gages at site 2.8 mi (4.5 km) northeast at Parker Horn at various datums. Oct. 30, 1945, to Mar. 12, 1955, water-stage recorder at site near west shore on downstream side of bridge on U.S. Highway 10 at present datum.

REMARKS.--Elevation controlled between 1,046 (318.8 m) and 1,048 ft (319.4 m) by two outlet structures at south end of lake. Many small diversions for irrigation. Elevations for Sept. 8, 9, 15, 19, and 29 were provided by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,048.29 ft (319.519 m) Mar. 10, 1950; minimum observed, 1,038.17 ft (316.434 m) Aug. 27, 1910.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,047.09 ft (319.153 m) Apr. 13-15; minimum, 1,043.65 ft (318.105 m) Jan. 2.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1046.99	1045.20	1044.03	1043.66	---	1046.80	1046.75	1046.55	1046.93	1046.40	1046.67	1046.91
2	1046.96	1045.15	1044.03	1043.66	---	1046.94	1046.79	1046.53	1046.89	1046.38	1046.68	1046.92
3	1046.91	1045.10	1044.01	1043.66	---	1046.96	1046.81	1046.49	1046.86	1046.35	1046.68	1046.91
4	1046.89	1045.04	1043.99	1043.66	---	1046.91	1046.86	1046.46	1046.82	1046.33	1046.69	1046.92
5	1046.88	1044.99	1043.97	1043.69	1044.53	1046.87	1046.87	1046.42	1046.80	1046.32	1046.71	---
6	1046.88	1044.95	1043.95	1043.68	1044.56	1046.81	1046.93	1046.42	1046.77	1046.32	1046.72	---
7	1046.88	1044.88	1043.95	1043.67	1044.61	1046.76	1046.95	1046.42	1046.76	1046.32	1046.73	---
8	1046.89	1044.83	1043.92	1043.69	1044.67	1046.80	1046.97	1046.42	1046.74	1046.34	1046.75	1046.98
9	1046.86	1044.79	1043.90	1043.71	1044.73	1046.84	1047.01	1046.43	1046.72	1046.35	1046.75	1046.94
10	1046.86	1044.74	1043.88	1043.72	1044.77	1046.87	1047.03	1046.44	1046.68	1046.36	1046.77	---
11	1046.86	1044.70	1043.84	1043.74	1044.82	1046.88	1047.05	1046.42	1046.65	1046.38	1046.79	---
12	1046.86	1044.66	1043.82	1043.78	1044.86	1046.86	1047.06	1046.40	1046.63	1046.40	1046.80	---
13	1046.86	1044.62	1043.79	1043.81	1044.90	1046.85	1047.08	1046.39	1046.64	1046.42	1046.81	---
14	1046.86	1044.58	1043.75	1043.84	1044.93	1046.86	1047.07	1046.48	1046.63	1046.44	1046.82	---
15	1046.88	1044.55	1043.81	1043.86	1044.98	1046.84	1047.07	1046.55	1046.63	1046.44	1046.82	1046.94
16	1046.93	1044.53	1043.77	1043.89	1045.02	1046.81	1047.03	1046.57	1046.63	1046.47	1046.83	---
17	1046.87	1044.51	1043.74	1043.92	1045.06	1046.80	1046.98	1046.59	1046.62	1046.48	1046.84	---
18	1046.70	1044.49	1043.73	1043.94	1045.17	1046.80	1046.93	1046.65	1046.61	1046.49	1046.86	---
19	1046.52	1044.46	1043.72	1043.96	1045.49	1046.79	1046.88	1046.73	1046.59	1046.51	1046.87	1046.91
20	1046.33	1044.43	1043.71	1043.99	1045.82	1046.78	1046.89	1046.79	1046.58	1046.52	1046.89	---
21	1046.15	1044.38	1043.70	1044.01	1046.06	1046.79	1046.87	1046.85	1046.57	1046.55	1046.91	---
22	1045.99	1044.34	1043.69	1044.04	1046.04	1046.76	1046.82	1046.88	1046.53	1046.57	1046.92	---
23	1045.86	1044.32	1043.68	1044.07	1046.01	1046.75	1046.78	1046.91	1046.52	1046.56	1046.93	---
24	1045.75	1044.28	1043.70	1044.10	1046.01	1046.74	1046.76	1046.92	1046.50	1046.57	1046.94	---
25	1045.65	1044.26	1043.70	1044.14	1046.17	1046.74	1046.73	1046.92	1046.48	1046.59	1046.94	---
26	1045.57	1044.21	1043.69	1044.16	1046.31	1046.73	1046.71	1046.96	1046.47	1046.60	1046.93	---
27	1045.51	1044.18	1043.67	---	1046.40	1046.73	1046.67	1047.01	1046.44	1046.61	1046.92	---
28	1045.44	1044.13	1043.67	---	1046.45	1046.71	1046.65	1047.02	1046.43	1046.63	1046.91	---
29	1045.36	1044.09	1043.66	---	1046.57	1046.73	1046.62	1046.99	1046.42	1046.64	1046.91	1046.87
30	1045.29	1044.05	1043.66	---	---	1046.72	1046.58	1046.97	1046.41	1046.64	1046.90	---
31	1045.24	---	1043.66	---	---	1046.70	---	1046.96	---	1046.65	1046.91	---
MEAN	1046.40	1044.58	1043.80	---	---	1046.80	1046.87	1046.66	1046.63	1046.47	1046.83	---
MAX	1046.99	1045.20	1044.03	---	---	1046.96	1047.08	1047.02	1046.93	1046.65	1046.94	---
MIN	1045.24	1044.05	1043.66	---	---	1046.70	1046.58	1046.39	1046.41	1046.32	1046.67	---

CAL YR 1979 MEAN 1045.57 MAX 1047.21 MIN 1043.60

12472300 DW 272A1 DRAIN NEAR ROYAL CAMP, WA

LOCATION.--Lat 46°54'46", long 119°10'32", in [illegible] sec.34, T.17 N., R.26 E., Grant County, Hydrologic Unit 17020015, on left bank 200 ft (61 m) upstream from entrance to DW 272A Drain and 2.7 mi (4.3 km) southwest of Royal Camp.

DRAINAGE AREA.--0.88 mi² (2.28 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1977 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 990 ft (302 m), from topographic map.

REMARKS.--Water-discharge records excellent. To obtain comparable records of water flow and water-quality data, all daily values have been computed with the day beginning at 0800 hours. Principal source of flow is waste and ground water return flows from irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18 ft³/s (0.51 m³/s) July 1, 1978, gage height, 5.58 ft (1.701 m) from rating curve extended above 6.0 ft³/s (0.17 m³/s) on basis of computation of flow through culvert at gage height 5.58 ft (1.701 m); minimum daily, 0.67 ft³/s (0.019 m³/s) Jan. 9, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14 ft³/s (0.40 m³/s) Apr. 1, gage height, 5.36 ft (1.634 m); minimum daily, 0.95 ft³/s (0.027 m³/s) Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	1.5	1.3	1.3	.98	2.3	3.8	3.0	3.2	5.5	4.6	3.9
2	2.1	1.5	1.2	1.4	1.0	2.2	3.4	2.7	3.2	7.3	5.5	3.8
3	2.5	1.5	1.2	1.3	.98	2.1	3.0	2.8	4.7	7.8	5.3	3.7
4	3.3	1.4	1.3	1.4	.95	1.9	3.3	2.7	5.0	11	5.3	3.7
5	3.8	1.3	1.5	1.4	1.0	1.9	4.9	2.7	4.9	6.7	5.1	3.6
6	3.2	1.4	1.6	1.4	1.0	1.8	5.5	3.3	4.6	6.1	4.7	3.3
7	3.4	1.5	1.5	1.4	.99	1.8	4.5	2.7	5.2	5.3	5.3	3.2
8	2.5	1.4	1.5	1.4	1.1	1.7	5.1	3.8	5.1	5.3	5.5	3.4
9	2.3	1.3	1.5	1.5	1.1	1.7	5.4	3.6	5.5	4.7	5.0	3.4
10	2.3	1.3	1.4	1.3	1.1	1.7	4.9	3.7	5.7	5.4	5.5	3.2
11	3.1	1.3	1.5	1.4	1.1	1.6	4.0	4.2	5.2	5.2	5.0	3.1
12	3.0	1.3	1.4	1.4	1.2	1.6	3.5	4.9	6.4	5.0	4.4	3.1
13	3.1	1.3	1.4	1.4	1.2	1.5	3.5	5.1	6.7	5.0	5.0	3.4
14	3.3	1.3	1.4	1.4	1.2	1.5	2.8	4.3	6.5	4.4	4.6	3.3
15	3.1	1.3	1.3	1.3	1.1	1.4	3.1	4.3	6.0	3.9	4.4	3.3
16	3.3	1.3	1.3	1.4	1.2	1.3	3.4	3.7	7.3	3.8	4.1	3.1
17	4.4	1.3	1.3	1.4	1.4	1.4	2.9	4.5	6.8	4.1	4.3	3.6
18	5.0	1.3	1.3	1.3	1.4	1.3	3.4	5.2	7.0	3.6	3.9	3.3
19	5.0	1.2	1.3	1.3	2.0	1.3	4.3	5.5	6.6	3.5	3.3	3.4
20	4.6	1.2	1.3	1.3	2.0	1.3	4.6	5.6	6.0	3.5	3.0	3.6
21	4.7	1.3	1.4	1.3	1.9	1.2	4.5	6.2	6.0	4.1	3.4	3.5
22	3.3	1.3	1.3	1.3	1.6	1.2	4.5	7.8	6.1	4.3	4.0	3.9
23	2.1	1.3	1.4	1.3	1.9	1.1	4.3	6.5	6.7	5.4	4.2	3.7
24	2.0	1.3	1.3	1.4	1.9	1.1	3.3	6.0	6.3	5.2	3.5	3.3
25	1.7	1.3	1.2	1.3	2.1	1.2	2.8	7.5	6.4	5.6	3.9	3.1
26	1.6	1.2	1.2	1.2	2.4	1.2	2.9	8.0	6.2	5.4	3.8	3.8
27	1.6	1.1	1.2	1.2	2.6	1.1	3.1	7.2	5.9	5.2	3.5	4.0
28	1.5	1.1	1.2	1.1	2.5	1.1	3.2	5.2	5.2	5.3	3.4	3.9
29	1.5	1.2	1.3	1.1	2.3	1.1	3.3	4.2	6.0	5.0	3.6	4.0
30	1.5	1.2	1.3	.98	---	1.1	3.1	3.1	6.7	5.0	3.6	3.7
31	1.5	---	1.3	.99	---	1.0	---	3.2	---	4.9	3.7	---
TOTAL	88.6	39.3	41.6	40.57	44.00	45.7	114.8	144.2	170.7	163.1	134.4	105.1
MEAN	2.86	1.31	1.34	1.31	1.52	1.47	3.83	4.65	5.69	5.26	4.34	3.50
MAX	5.0	1.5	1.6	1.5	2.6	2.3	5.5	8.0	7.3	11	5.5	4.0
MIN	1.5	1.1	1.2	.98	.95	1.0	2.8	2.7	3.2	3.5	3.0	3.1
AC-FT	176	78	83	80	87	91	228	286	339	324	267	208

CAL YR 1979 TOTAL 1054.68 MEAN 2.89 MAX 8.1 MIN .67 AC-FT 2090
WTR YR 1980 TOTAL 1132.07 MEAN 3.09 MAX 11 MIN .95 AC-FT 2250

12472350 DW 272A DRAIN NEAR ROYAL CAMP, WA

LOCATION.--Lat 46°54'54", long 119°32'38", in NW¼NW¼ sec.3, T.16 N., R.26 E., Grant County, Hydrologic Unit 17020015, on right bank at upstream end of culvert under a county road, 20 ft (6 m) downstream from entrance of DW 272A1 Drain, 0.2 mi (0.3 km) upstream from entrance to DW 272 Drain, 1.4 mi (2.3 km) upstream from Crab Creek Lateral, and 2.7 mi (4.3 km) southwest of Royal Camp.

DRAINAGE AREA.--3.36 mi^2 (8.70 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1977 to current year.

GAGE.--Water-stage recorder and corrugated metal culvert control. Altitude of gage is 980 ft (299 m), from topographic map.

REMARKS.--Water-discharge records excellent. Flow includes that of DW 272A1 Drain (station 12472300). To obtain comparable records of water flow and water-quality data, all daily values have been computed with the day beginning at 0900 hours. Principal source of flow is waste and ground-water return flows from irrigation. During the irrigation season most of the flow is reused and during the nonirrigation season wasted to Crab Creek.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40 ft^3/s (1.13 m^3/s) July 1, 1978, gage height, 15.18 ft (4.627 m) from rating curve extended above 14 ft^3/s (0.40 m^3/s) on basis of computation of flow through a culvert at gage height 15.18 ft (4.627 m); minimum daily, 1.6 ft^3/s (0.04 m^3/s) Jan. 6-8, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23 ft^3/s (0.65 m^3/s) July 4, gage height, 12.12 ft (3.694 m); minimum daily, 2.3 ft^3/s (0.065 m^3/s) Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	3.7	3.3	3.3	2.5	5.3	5.5	6.1	7.0	13	12	11
2	6.2	3.5	3.0	3.5	2.6	5.2	4.5	7.0	7.4	15	13	11
3	7.8	3.4	3.0	3.4	2.5	5.0	4.4	7.4	12	16	13	12
4	11	3.3	3.1	3.6	2.3	4.7	5.1	7.5	13	20	13	11
5	8.5	3.2	3.5	3.4	2.5	4.6	8.4	7.8	12	14	14	11
6	8.2	3.3	3.8	3.4	2.7	4.4	9.7	7.5	12	13	13	10
7	8.5	3.3	3.8	3.5	2.5	4.2	9.2	6.2	12	12	14	10
8	8.0	3.2	3.8	3.5	2.5	4.0	9.9	7.2	11	13	16	9.9
9	8.1	3.2	3.9	3.6	2.5	3.9	9.1	7.4	12	14	14	10
10	8.0	3.1	3.6	3.2	2.5	4.0	7.8	8.3	12	15	14	10
11	7.3	3.0	3.7	3.5	2.6	3.9	7.6	9.2	12	16	15	12
12	7.2	3.0	3.5	3.6	2.7	3.8	6.5	11	16	14	13	12
13	7.3	3.0	3.5	3.5	2.6	3.8	7.4	11	17	13	14	14
14	7.2	3.0	3.5	3.4	2.7	3.6	6.1	10	15	12	13	12
15	7.1	3.0	3.2	3.3	2.6	3.2	4.4	9.1	15	11	12	11
16	7.4	3.3	3.2	3.5	2.7	3.3	4.5	8.1	16	11	12	11
17	9.0	3.2	3.3	3.3	3.0	3.4	5.0	9.4	16	12	13	8.4
18	10	3.0	3.3	3.1	3.4	3.2	5.0	11	16	12	14	7.6
19	11	2.9	3.3	3.1	4.3	3.2	5.7	12	14	12	12	7.6
20	11	2.9	3.3	3.2	4.9	3.1	6.7	13	15	10	11	7.7
21	12	3.0	3.4	3.2	4.2	2.8	8.1	13	14	10	13	7.7
22	8.7	3.2	3.3	3.1	3.8	2.8	6.2	17	14	11	13	8.2
23	6.2	3.1	3.6	3.2	4.6	2.7	5.3	15	16	12	16	8.4
24	7.3	3.2	3.4	3.2	4.7	2.9	4.2	14	15	12	13	8.3
25	6.2	3.1	3.2	3.1	5.0	2.9	3.8	16	15	13	12	8.5
26	4.2	2.9	3.1	2.8	5.3	2.8	3.9	17	14	13	12	9.1
27	4.0	2.7	3.2	2.8	5.5	2.7	4.0	16	12	12	10	9.0
28	3.8	2.8	3.2	2.8	5.8	2.7	4.3	12	11	13	10	8.6
29	3.8	3.0	3.3	2.6	5.3	2.6	5.2	9.0	8.8	13	11	9.4
30	3.8	3.0	3.4	2.6	---	2.6	6.1	7.3	10	12	11	8.6
31	3.7	---	3.3	2.5	---	2.6	---	7.2	---	12	11	---
TOTAL	228.8	93.5	105.0	99.8	100.8	109.9	183.6	319.7	392.2	401	397	295.0
MEAN	7.38	3.12	3.39	3.22	3.48	3.55	6.12	10.3	13.1	12.9	12.8	9.83
MAX	12	3.7	3.9	3.6	5.8	5.3	9.9	17	17	20	16	14
MIN	3.7	2.7	3.0	2.5	2.3	2.6	3.8	6.1	7.0	10	10	7.6
AC-FT	454	185	208	198	200	218	364	634	778	795	787	585

CAL YR 1979 TOTAL 2655.8 MEAN 7.28 MAX 18 MIN 1.6 AC-FT 5270
WTR YR 1980 TOTAL 2720.3 MEAN 7.43 MAX 20 MIN 2.3 AC-FT 5410

12472600 CRAB CREEK NEAR BEVERLY, WA

LOCATION.--Lat 46°49'48", long 119°49'48", in NW¼SW¼ sec.33, T.16 N., R.24 E., Grant County, Hydrologic Unit 17020015, on right bank 4.9 mi (7.9 km) east of Beverly and at mile 4.5 (7.2 km).

DRAINAGE AREA.--4,842 mi² (12,541 km²), of which 665 mi² (1,722 km²) in the vicinity of Soap Lake is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to current year.

REVISED RECORDS.--WSP 1933. Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 500 ft (152 m), from topographic map.

REMARKS.--Water-discharge records good. Many diversions above station for irrigation. Flow largely regulated by Potholes Reservoir 41.3 mi (66.5 km) upstream. A major portion of flow is return flows, including trans-basin diversions, from parts of the Columbia Basin project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 936 ft³/s (26.5 m³/s) Mar. 3, 1980, gage height, 6.46 ft (1.969 m); minimum discharge, 19 ft³/s (0.28 m³/s) Jan. 10, 1963, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 936 ft³/s (26.5 m³/s) Mar. 3, gage height, 6.46 ft (1.969 m); minimum daily, 130 ft³/s (3.68 m³/s) Jan. 29, 30, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	304	268	227	243	150	426	186	218	336	244	263	308
2	306	264	227	252	160	528	180	208	331	225	258	306
3	310	267	228	249	170	848	178	215	328	199	257	315
4	313	267	252	240	180	804	181	213	316	207	260	316
5	317	270	274	241	190	746	180	213	302	218	268	316
6	319	270	266	235	202	732	205	217	291	231	282	318
7	319	264	256	202	212	736	216	222	285	239	288	310
8	322	256	244	190	206	717	221	212	280	245	271	298
9	324	251	236	175	205	701	232	221	284	242	262	288
10	327	248	230	170	209	637	241	245	285	204	265	278
11	324	244	226	170	211	535	241	271	275	206	269	275
12	321	241	220	205	210	484	226	276	247	208	275	277
13	325	237	220	288	209	452	232	280	252	209	263	287
14	328	232	214	298	194	434	228	282	277	211	256	322
15	327	232	221	300	192	419	237	298	288	228	260	338
16	332	238	217	277	202	374	245	303	289	224	259	357
17	333	255	216	266	206	272	239	285	292	221	256	367
18	338	262	222	259	250	235	246	255	289	216	267	368
19	340	257	229	235	300	226	249	269	287	230	283	368
20	341	245	229	221	320	218	259	287	284	238	286	374
21	347	237	224	225	336	212	285	302	260	243	292	375
22	350	235	221	213	364	205	297	313	252	244	289	374
23	350	239	217	211	395	191	281	308	264	234	284	373
24	353	247	223	207	416	196	257	294	272	235	283	372
25	358	255	230	205	404	199	260	292	271	236	283	370
26	357	255	234	170	354	193	244	305	260	239	283	363
27	352	248	233	145	355	187	235	328	251	238	275	353
28	336	237	232	140	407	195	234	350	257	242	279	339
29	313	222	235	130	395	182	223	365	249	248	289	330
30	290	225	236	130	---	198	230	365	246	260	294	313
31	276	---	237	135	---	195	---	355	---	264	301	---
TOTAL	10152	7468	7176	6627	7604	12677	6968	8567	8400	7128	8500	9948
MEAN	327	249	231	214	262	409	232	276	280	230	274	332
MAX	358	270	274	300	416	848	297	365	336	264	301	375
MIN	276	222	214	130	150	182	178	208	246	199	256	275
AC-FT	20140	14810	14230	13140	15080	25140	13820	16990	16660	14140	16860	19730

CAL YR 1979 TOTAL 81397 MEAN 223 MAX 370 MIN 115 AC-FT 161500
WTR YR 1980 TOTAL 101215 MEAN 277 MAX 848 MIN 130 AC-FT 200800

CRAB CREEK BASIN

12472600 CRAB CREEK NEAR BEVERLY, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at lower Crab Creek road bridge, 0.8 mi (1.3 km) upstream from gage.

PERIOD OF RECORD.--Water years 1959-72, 1975 to current year (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1959 to September 1962, July 1968 to August 1970.

REMARKS.--Prior to 1975 samples collected at site 1.5 mi (2.4 km) upstream from gage. Water quality records published as 12472500 "near Smyrna" for period 1959-63.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT , 1979										
15...	1245	327	550	8.4	15.6	29	5.0	9.4	210	43
NOV										
26...	1250	258	900	8.3	5.0	21	6.0	13.4	262	49
DEC										
17...	1400	215	890	8.4	3.2	29	4.0	13.1	276	56
JAN , 1980										
21...	1430	226	925	8.5	1.5	21	5.0	15.6	272	56
FEB										
25...	1200	407	840	8.2	7.0	54	14	12.0	235	48
MAR										
26...	1210	195	880	8.6	10.2	26	2.0	11.6	275	54
APR										
14...	1200	239	760	8.5	15.5	34	22	10.0	223	43
MAY										
12...	1225	280	650	8.2	19.2	34	26	8.6	196	39

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT , 1979									
15...	25	66	39	2.0	10	240	1.6	94	30
NOV									
26...	34	90	41	2.5	12	290	2.3	140	43
DEC									
17...	33	92	41	2.5	12	290	1.8	120	36
JAN , 1980									
21...	32	91	41	2.5	12	280	1.4	140	42
FEB									
25...	28	92	44	2.7	15	270	2.7	120	38
MAR									
26...	34	110	45	3.0	14	290	1.2	150	44
APR									
14...	28	88	45	2.6	12	260	1.2	120	38
MAY									
12...	24	69	48	2.0	9.0	220	2.2	87	26

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)
OCT , 1979									
15...	1.7	.100	.13	1.1	1.20	2.9	13	.040	.12
NOV									
26...	4.0	.100	.13	1.2	1.30	5.3	23	.150	.46
DEC									
17...	3.6	.120	.15	.86	.98	4.6	20	.130	.40
JAN , 1980									
21...	3.5	.010	.01	.55	.56	4.1	18	.010	.03
FEB									
25...	2.4	.220	.28	.97	1.20	3.6	16	.290	.89
MAR									
26...	2.7	.020	.02	1.4	1.40	4.1	18	.200	.61
APR									
14...	1.6	.020	.02	1.3	1.30	2.9	13	.200	.61
MAY									
12...	1.3	.040	.05	2.1	2.10	3.4	15	.160	.49

12472600 CRAB CREEK NEAR BEVERLY, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	ACIDITY (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
MAY , 1980											
29...	1115	365	715	8.0	21.0	--	23	9.4	211	15	43
JUN											
06...	1020	--	615	8.0	16.4	--	13	9.4	184	10.0	39
10...	1130	286	603	8.3	18.4	--	28	8.9	180	--	39
16...	1310	289	625	8.4	22.2	29	60	9.1	179	--	37
17...	1050	294	540	7.8	18.8	--	--	8.6	186	--	38
24...	1130	273	600	8.5	19.4	--	42	--	188	--	39
JUL											
21...	1100	243	607	8.0	24.3	--	40	7.5	184	--	39
AUG											
18...	1030	264	665	8.5	17.0	21	25	9.1	207	.0	43
SEP											
15...	1215	339	880	8.3	19.2	108	9.2	7.0	235	.0	48

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)
MAY , 1980										
29...	25	71	41	2.2	10	220	3.5	91	20	23
JUN										
06...	21	56	38	1.8	8.7	200	3.2	74	25	20
10...	22	54	37	1.8	8.5	190	1.9	74	21	21
16...	21	57	39	1.9	9.0	210	1.3	78	23	--
17...	22	63	41	2.1	10	210	5.3	82	25	21
24...	22	57	39	1.9	7.9	190	1.0	79	22	21
JUL										
21...	21	52	37	1.7	8.4	200	3.2	76	22	23
AUG										
18...	24	57	36	1.8	7.9	210	1.1	82	22	26
SEP										
15...	29	110	48	3.2	19	280	2.1	140	45	29

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)
MAY , 1980										
29...	440	423	.60	434	1.2	1.2	.040	.000	.05	.00
JUN										
06...	370	365	.50	--	1.3	1.3	.070	.000	.08	.00
10...	365	355	.50	282	1.4	1.5	.020	.060	.02	.08
16...	--	--	--	--	1.6	--	.000	--	.00	--
17...	403	388	.55	320	1.3	1.4	.010	.040	.01	.05
24...	375	363	.51	276	1.4	1.4	.040	.030	.05	.04
JUL										
21...	381	363	.52	290	1.8	2.0	.000	.000	.00	.00
AUG										
18...	392	389	.53	279	2.2	2.3	.080	.000	.08	.00
SEP										
15...	597	575	.81	546	2.0	2.0	.030	.020	.04	.03

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
MAY , 1980										
29...	.59	.43	.63	.20	.43	1.8	8.1	.100	.31	.060
JUN										
06...	.93	.80	1.00	.20	.80	2.3	10	.210	.64	.030
10...	1.1	.63	1.10	.61	.49	2.5	11	.170	.52	.030
16...	1.0	--	1.00	--	--	2.6	12	.140	.43	--
17...	1.1	.73	1.10	.33	.77	2.4	11	.210	.64	.050
24...	1.1	1.4	1.10	.00	1.4	2.5	11	.190	.58	.080
JUL										
21...	2.7	1.9	2.70	.80	1.9	4.5	20	.200	.61	.030
AUG										
18...	.99	.96	.99	.03	.96	3.2	14	.110	.34	.060
SEP										
15...	1.5	1.4	1.50	.10	1.4	3.5	15	.230	.71	.100

12472600 CRAB CREEK NEAR BEVERLY, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, SUSPENDED RECOV. (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ANTIMONY, TOTAL (UG/L AS SB)	ANTIMONY, SUSPENDED TOTAL (UG/L AS SB)	ANTIMONY, DISSOLVED (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)
MAY , 1980											
29...	1115	--	--	0	0	0	0	7	0	7	100
JUN											
06...	1020	290	270	20	0	0	0	7	1	6	100
10...	1130	1200	1200	50	0	0	0	6	0	6	100
16...	1310	--	--	--	--	--	--	--	--	5	--
17...	1050	1100	1100	10	--	--	--	7	1	6	0
24...	1130	1600	1600	30	--	--	--	6	0	6	100
JUL											
21...	1100	100	100	0	--	--	--	7	0	7	100
AUG											
18...	1030	540	520	20	--	--	--	6	0	6	100
SEP											
15...	1215	260	250	10	--	--	--	8	1	7	100

DATE	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	BORON, TOTAL RECOVERABLE (UG/L AS B)	BORON, SUSPENDED RECOVERABLE (UG/L AS B)	BORON, DISSOLVED (UG/L AS B)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)
MAY , 1980											
29...	50	50	60	10	50	0	<1	0	0	0	0
JUN											
06...	50	50	70	40	30	0	<1	0	0	0	0
10...	50	50	60	0	80	0	<1	0	0	0	0
16...	--	50	--	--	--	--	<1	--	--	0	--
17...	0	50	70	10	60	0	<1	30	30	0	1
24...	50	50	80	20	60	0	<1	0	0	0	2
JUL											
21...	50	50	60	10	50	0	<1	0	0	10	0
AUG											
18...	40	60	90	30	60	0	<1	0	0	0	0
SEP											
15...	30	70	90	20	70	0	<1	0	0	0	0

DATE	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)
MAY , 1980										
29...	<3	9	<10	820	810	15	6	--	<10	10
JUN										
06...	<3	10	<10	2400	2400	11	8	--	<10	10
10...	<3	12	<10	2400	2400	15	4	--	<10	10
16...	--	--	5	--	--	--	--	--	0	--
17...	<3	8	<10	2600	2600	24	8	8	0	0
24...	<3	11	<10	2400	2400	12	4	4	0	10
JUL										
21...	<3	17	<10	3100	--	<10	8	0	<10	10
AUG										
18...	<3	12	<10	1400	1400	12	7	6	1	10
SEP										
15...	<3	14	<10	810	760	48	8	--	<10	10

DATE	LITHIUM SUSPENDED RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
MAY , 1980										
29...	2	8	60	60	4	.1	.0	.1	7	4
JUN										
06...	0	10	110	110	5	.3	.1	.2	6	4
10...	1	9	110	100	11	.2	.0	.2	0	0
16...	--	--	--	--	--	.1	--	--	--	--
17...	0	6	90	80	12	.0	.0	.1	26	24
24...	3	7	120	110	6	.1	.0	.2	6	6
JUL										
21...	0	13	140	140	3	.1	.1	.0	8	2
AUG										
18...	3	7	70	70	3	.7	.0	.7	3	1
SEP										
15...	0	12	50	40	9	.2	.1	.1	8	7

12472600 CRAB CREEK NEAR BEVERLY, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDED TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDED RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDED RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY , 1980										
29...	3	1	0	1	0	0	0	20	10	8
JUN										
06...	2	1	0	1	0	0	0	40	--	<3
10...	7	1	1	0	0	0	0	30	--	<3
16...	--	--	--	1	--	--	0	--	--	<3
17...	2	1	0	1	0	0	0	60	50	8
24...	0	1	0	1	0	0	0	20	--	<3
JUL										
21...	6	0	0	1	0	0	0	50	--	<3
AUG										
18...	2	1	0	1	1	1	0	10	--	<3
SEP										
15...	1	1	0	1	0	0	0	30	--	<3

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT , 1979											
15...	1245	8	60	<1	10	6	18	.6	0	0	10
NOV											
26...	1250	6	70	<1	10	26	120	.4	0	0	10
DEC											
17...	1400	9	--	<1	0	0	0	1.2	1	0	<3
JAN , 1980											
21...	1430	9	70	<1	20	0	4	1.4	1	0	<3
FEB											
25...	1200	8	60	1	20	5	5	.1	1	0	10
MAR											
24...	1210	8	70	<1	10	5	14	.6	1	0	10
APR											
14...	1200	8	60	<1	20	4	37	.3	1	0	10
MAY											
12...	1225	5	40	<1	0	2	27	.2	1	0	<3

12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA

LOCATION.--Lat 46°37'44", long 119°51'49", in SE¼NW¼ sec.7, T.13 N., R.24 E., Grant County, Hydrologic Unit 17020016, on left bank 2.6 mi (4.2 km) downstream from Priest Rapids Dam, 14.7 mi (23.7 km) south of Beverly, and at mile 394.5 (634.8 km).

DRAINAGE AREA.--96,000 mi^2 (249,000 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1917 to current year. January 1917 to September 1930, at site 3.4 mi (5.5 km) downstream, published as "at Vernita." October 1930 to July 27, 1959, at site 46.5 mi (74.8 km) upstream, published as "at Trinidad."

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1930, nonrecording gages at site 3.4 mi (5.5 km) downstream at datum 388.7 ft (118.48 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1930, to July 27, 1959, water-stage recorder at site 46.5 mi (74.8 km) upstream at datum 499.3 ft (152.19 m) National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--Water-discharge records excellent. Powerplant records were used Nov. 21-30, Feb. 25-28, and Mar. 6-11, 20-22, and Aug. 9-11, 13-15. Diversions for irrigation of about 500,000 acres (2,020 km^2) above station. Flow regulated by 10 major reservoirs and numerous smaller reservoirs and powerplants.

AVERAGE DISCHARGE.--63 years, 119,700 ft^3/s (3,390 m^3/s), 86,720,000 acre-ft/yr (106,900 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft^3/s (19,600 m^3/s) June 12, 1948, gage height, 59.35 ft (18.090 m), site and datum then in use; minimum, 4,120 ft^3/s (117 m^3/s) Feb. 10, 1932, gage height, 11.40 ft (3.475 m) site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft^3/s (21,000 m^3/s), based on information obtained at other points.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 275,000 ft^3/s (7,790 m^3/s) June 19, elevation, 415.90 ft (126.766 m); minimum, 37,300 ft^3/s (1,060 m^3/s) Nov. 18, elevation, 396.55 ft (120.868 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83500	91000	105000	77300	106000	54400	93500	140000	186000	118000	93300	70600
2	90200	96000	73500	102000	95500	59200	92800	122000	164000	137000	100000	83500
3	89400	79900	85400	117000	75200	90800	82500	128000	160000	141000	84700	85600
4	76100	70900	106000	145000	97300	99100	89500	110000	151000	139000	97100	94000
5	72100	87300	110000	98900	107000	94300	72600	130000	161000	128000	101000	82600
6	59900	89500	89300	124000	115000	107000	86900	136000	167000	123000	86200	73900
7	53900	105000	85400	132000	113000	84700	100000	156000	163000	124000	88500	53100
8	74900	106000	90500	150000	97200	71700	94100	151000	154000	110000	93600	79900
9	80300	118000	78000	110000	105000	69500	84800	147000	180000	120000	90400	76600
10	85900	91000	119000	105000	84300	93700	80100	131000	165000	122000	66500	75400
11	88400	99400	134000	109000	119000	112000	73400	109000	172000	121000	105000	72600
12	104000	106000	134000	80100	127000	103000	60000	135000	175000	114000	105000	68300
13	84900	119000	110000	93600	123000	104000	57300	152000	169000	102000	103000	53900
14	58500	101000	94000	105000	139000	112000	82200	154000	156000	118000	113000	42900
15	77300	104000	86900	90100	134000	101000	82600	146000	161000	117000	110000	78100
16	80800	153000	106000	82100	111000	88700	75100	139000	179000	113000	95100	88900
17	108000	79000	108000	91600	101000	98200	80000	111000	201000	119000	78200	80600
18	115000	100000	94700	110000	92700	95100	69800	98500	208000	109000	98700	81900
19	104000	96800	93400	111000	94300	91700	59700	132000	199000	125000	84100	82000
20	83200	115000	80900	93800	97500	79000	56900	132000	191000	114000	91200	61200
21	63000	134000	102000	100000	91600	67000	70100	126000	187000	119000	89000	49000
22	83800	89900	103000	103000	81000	55000	60500	152000	173000	110000	91600	68300
23	80900	101000	104000	82300	79900	64400	57700	153000	178000	104000	81200	64000
24	76800	91800	86300	114000	71500	75400	72500	129000	178000	110000	66700	76100
25	84100	75500	62400	115000	97500	75700	93200	125000	181000	108000	110000	79500
26	72100	95200	77000	113000	90600	96300	60300	124000	169000	89500	122000	69300
27	59300	122000	103000	121000	80500	87500	64600	109000	164000	77700	96600	61900
28	55700	110000	121000	128000	81000	81000	120000	150000	145000	109000	87400	45600
29	65400	114000	112000	133000	73300	69200	124000	147000	146000	98500	97100	73200
30	106000	105000	93800	129000	---	70100	115000	149000	148000	104000	91500	62900
31	106000	---	92400	144000	---	97500	---	160000	---	103000	68700	---
TOTAL	2523400	3046200	3026900	3417800	2877700	2648200	2411700	4183500	5129000	3546700	2878400	2135400
MEAN	81400	101500	97640	110300	99230	85430	80390	135000	171000	114400	92850	71180
MAX	115000	153000	134000	150000	139000	112000	124000	160000	208000	141000	122000	94000
MIN	53900	70900	62400	77300	71500	54400	56900	98500	145000	77700	66500	42900
AC-FT	5005000	6042000	6004000	6779000	5708000	5253000	4784000	8298000	10170000	7035000	5709000	4236000

CAL YR 1979 TOTAL 36606500 MEAN 100300 MAX 153000 MIN 50500 AC-FT 72610000
WTR YR 1980 TOTAL 37824900 MEAN 103300 MAX 208000 MIN 42900 AC-FT 75030000

12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS, DAM, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March to September 1980.

INSTRUMENTATION.--Temperature recorder since December 1979.

REMARKS.--Temperature records at site 12472900 Columbia River at Vernita Bridge, near Priest Rapids Dam, published for the period July 1974 to September 1980, are equivalent.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March to September 1980. Maximum, 19.7°C Sept. 14; minimum, 2.9°C Mar. 13, 1980.

TEMPERATURE, WATER (DEC. C), MARCH TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1				---	---	---	5.5	4.5	5.0	9.5	9.0	9.0
2				---	---	---	5.5	4.5	5.0	10.0	9.5	9.5
3				---	---	---	5.5	5.0	5.0	9.5	9.0	9.0
4				---	---	---	6.0	5.0	5.5	10.0	9.0	9.5
5				---	---	---	6.0	5.0	5.5	10.0	9.5	10.0
6				---	---	---	6.0	5.0	5.5	10.0	9.5	10.0
7				3.5	3.0	3.0	7.0	5.0	6.0	10.0	9.5	9.5
8				3.5	3.0	3.5	7.0	5.5	6.0	10.0	9.5	10.0
9				5.0	3.0	3.5	6.5	5.5	6.0	10.0	9.5	10.0
10				4.0	3.5	3.5	7.0	5.5	6.0	10.0	10.0	10.0
11				3.5	3.0	3.5	7.0	6.0	6.5	10.5	10.0	10.0
12				3.5	3.0	3.5	7.0	6.0	6.5	10.5	10.0	10.5
13				3.5	3.0	3.0	---	---	---	10.5	10.0	10.0
14				3.5	3.0	3.5	---	---	---	10.5	10.0	10.0
15				4.5	3.0	3.5	---	---	---	10.5	10.0	10.0
16				5.5	4.0	4.5	---	---	---	10.5	10.0	10.0
17				5.5	4.0	4.5	7.0	6.5	6.5	11.0	10.0	10.5
18				5.5	4.0	4.5	8.0	6.0	7.0	11.0	10.0	10.5
19				4.5	4.0	4.0	8.0	7.0	7.5	10.5	10.5	10.5
20				5.0	3.5	4.0	7.5	7.0	7.5	11.0	10.5	10.5
21				4.5	4.0	4.0	7.5	7.0	7.0	11.5	10.5	11.0
22				5.0	4.0	4.5	8.0	7.0	7.5	11.5	11.0	11.0
23				5.0	4.0	4.5	9.0	7.5	8.0	11.5	11.0	11.0
24				5.5	4.0	4.5	9.0	7.5	8.0	11.5	11.0	11.0
25				5.0	3.5	4.5	8.5	7.5	8.0	11.5	11.0	11.0
26				4.5	4.0	4.5	9.5	7.5	8.5	11.0	11.0	11.0
27				4.5	4.5	4.5	10.5	8.5	9.0	11.0	10.5	11.0
28				5.0	4.5	4.5	9.5	8.0	9.0	11.0	10.5	11.0
29				5.5	4.5	5.0	9.5	8.5	9.0	11.5	11.0	11.5
30				5.5	4.5	5.0	9.5	8.5	8.5	11.5	11.5	11.5
31				5.5	5.0	5.0	---	---	---	12.0	11.5	12.0
MONTH				5.5	3.0	4.0	10.5	4.5	7.0	12.0	9.0	10.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.0	11.5	12.0	15.5	14.5	15.0	19.0	18.5	19.0	18.5	17.5	18.0
2	12.0	11.5	11.5	15.5	15.0	15.5	19.0	18.5	18.5	18.5	17.5	18.0
3	12.0	11.5	11.5	15.5	15.5	15.5	19.0	18.0	18.5	18.0	17.0	17.5
4	12.5	11.5	12.0	15.5	15.0	15.5	18.5	18.0	18.5	18.5	17.0	18.0
5	12.5	12.0	12.5	15.5	15.0	15.5	18.5	18.0	18.0	18.5	17.5	18.0
6	12.5	12.0	12.5	15.5	15.0	15.5	18.5	17.5	18.0	19.0	18.0	18.5
7	13.0	12.5	12.5	16.0	15.0	15.5	18.5	18.0	18.5	19.0	18.0	18.5
8	13.0	13.0	13.0	16.0	15.5	15.5	18.5	18.0	18.0	18.5	17.5	18.0
9	13.0	13.0	13.0	16.5	15.5	16.0	19.0	18.0	18.5	19.0	17.5	18.5
10	13.0	12.5	12.5	16.0	16.0	16.0	19.0	18.0	18.5	19.0	18.0	18.5
11	13.0	13.0	13.0	16.0	15.5	16.0	19.0	18.5	18.5	19.0	18.0	18.5
12	13.0	13.0	13.0	16.0	15.5	16.0	18.5	18.0	18.5	19.0	18.0	18.5
13	13.0	13.0	13.0	16.5	16.0	16.5	19.0	17.5	18.5	18.0	17.5	18.0
14	14.0	13.0	13.5	17.0	16.0	16.5	19.0	18.0	18.5	19.5	17.5	18.5
15	14.0	13.5	13.5	17.0	16.0	16.5	19.0	18.5	18.5	19.0	17.5	18.5
16	14.0	13.5	14.0	17.0	16.0	16.5	19.0	18.0	18.5	19.0	18.0	18.5
17	14.0	14.0	14.0	---	---	---	18.5	18.0	18.5	19.0	18.0	18.5
18	14.0	14.0	14.0	---	---	---	18.0	17.5	18.0	18.5	18.0	18.5
19	14.0	14.0	14.0	---	---	---	18.5	17.5	18.0	18.5	17.5	18.0
20	14.5	14.0	14.0	---	---	---	18.5	17.5	18.0	18.0	17.0	17.5
21	14.5	14.5	14.5	---	---	---	18.5	17.5	18.0	18.5	17.0	17.5
22	15.0	14.5	14.5	---	---	---	19.0	18.0	18.5	17.5	16.5	17.0
23	15.0	14.5	15.0	---	---	---	19.0	18.0	18.5	18.0	16.5	17.5
24	15.0	14.5	14.5	---	---	---	19.0	18.0	18.5	17.5	16.5	17.0
25	14.5	14.5	14.5	---	---	---	19.0	18.5	18.5	18.0	16.5	17.5
26	14.5	14.5	14.5	---	---	---	19.0	18.5	19.0	18.0	17.0	17.5
27	15.0	14.5	14.5	---	---	---	19.0	18.0	18.5	18.5	16.5	17.5
28	15.0	14.5	14.5	---	---	---	18.5	17.0	18.0	19.0	17.0	18.0
29	15.0	14.5	15.0	19.0	18.5	19.0	19.0	17.0	18.0	18.0	16.5	17.5
30	14.5	14.5	14.5	19.0	18.0	18.5	18.5	18.0	18.5	18.0	17.0	17.5
31	---	---	---	19.0	18.5	19.0	19.0	18.0	18.5	---	---	---
MONTH	15.0	11.5	13.5	19.0	14.5	16.5	19.0	17.0	18.5	19.5	16.5	18.0

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 46°58'34", long 119°43'54", in NW¼SE¼ sec.6, T.13 N., R.25 E., Grant County, Hydrologic Unit 17020016, at State Highway 24 Vernita Bridge crossing, 9.0 mi (14.5 km) downstream from Priest Rapids Dam, and at mile 388.1 (624.5 km).

DRAINAGE AREA.--96,000 mi^2 (248,600 km^2), approximately.

PERIOD OF RECORD.--Water years 1962-63, 1972, 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Temperature recorder since July 1974 to current year (discontinued).

REMARKS.--October 1971 to September 1972, at site 6.4 mi (10.3 km) upstream, published as 12472800 "below Priest Rapids Dam." Prior to October 1971 published as 12472800 "at Vernita Ferry."

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 20.5°C Aug. 16-21, 1977; minimum, 0°C Feb. 1-6, 1979.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 19.0°C Aug. 1, Sept. 16,17; minimum, 1.5°C Jan. 30 to Feb. 6.

WATER QUALITY DATA OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT , 1979											
01...	1100	45400	123	8.1	18.2	.70	9.7	1	40	60	7
NOV											
07...	1100	143000	140	8.0	13.8	.80	9.8	1	2	64	14
DEC											
06...	1100	73400	136	7.8	8.9	1.4	10.6	--	7	68	10
JAN , 1980											
21...	1200	105000	140	7.7	2.9	.50	12.8	<1	1	67	7
FEB											
20...	1430	121000	147	8.6	2.2	.80	13.4	<1	41	81	19
MAR											
06...	1230	121000	156	7.8	2.9	3.2	13.4	1	6	77	12
APR											
17...	1130	72200	148	7.5	7.0	1.3	13.2	4	--	73	14
MAY											
13...	1130	144000	136	7.8	10.4	3.7	11.8	3	2	62	9
JUN											
09...	1145	178000	112	8.4	12.7	4.9	11.6	9	11	51	4
JUL											
14...	1200	109000	130	8.1	16.4	1.0	10.9	<1	1	59	4
AUG											
11...	1045	54500	155	8.5	23.6	1.4	10.2	4	1	62	5
SEP											
10...	1300	84000	127	8.3	18.6	1.2	9.2	1	--	61	10

DATE	ACIDITY (MG/L AS CACO3)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	MAGNE-SIUM, SUS-PENDED TOTAL (MG/L AS MG)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
OCT , 1979										
01...	--	20	18	4.5	.8	3.7	2.3	2.1	6	.1
NOV										
07...	--	--	19	--	--	4.1	--	2.3	7	.1
DEC										
06...	--	--	20	--	--	4.4	--	2.1	6	.1
JAN , 1980										
21...	--	--	20	--	--	4.2	--	2.0	5	.1
FEB										
20...	--	--	24	--	--	5.3	--	2.4	5	.1
MAR										
06...	--	--	22	--	--	5.4	--	3.0	7	.1
APR										
17...	--	19	21	3.9	.0	5.0	2.1	2.5	6	.1
MAY										
13...	--	--	18	--	--	4.2	--	2.2	7	.1
JUN										
09...	--	--	15	--	--	3.4	--	2.0	7	.1
JUL										
14...	--	16	17	4.2	.1	4.1	2.5	2.4	7	.1
AUG										
11...	--	--	18	--	--	4.3	--	2.4	7	.1
SEP										
10...	.0	--	18	--	--	4.0	--	2.3	7	.1

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

WATER QUALITY DATA OCTOBER 1979 TO SEPTEMBER 1980

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE FET-FLD (MG/L AS HCO3)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT , 1979										
01...	.8	--	53	.6	9.0	1.1	.1	4.2	62	70
NOV										
07...	.8	--	58	.7	13	1.0	.1	4.3	77	74
DEC										
06...	.8	--	58	1.4	11	1.1	.2	4.4	83	78
JAN , 1980										
21...	.8	--	60	1.9	13	1.0	.1	4.8	93	81
FEB										
20...	.9	--	62	.2	17	1.7	.2	4.7	94	93
MAR										
06...	1.0	--	65	1.6	17	2.5	.2	5.0	109	95
APR										
17...	.9	--	59	2.9	16	1.2	.2	5.1	99	87
MAY										
13...	.8	--	53	1.3	14	.9	.1	5.9	85	77
JUN										
09...	.8	--	47	.2	9.4	.7	.1	5.7	89	65
JUL										
14...	.8	67	55	.8	8.8	2.3	.3	4.6	79	73
AUG										
11...	.8	70	53	.3	9.8	1.1	.2	4.2	83	75
SEP										
10...	.7	62	51	.4	11	1.4	.2	4.5	80	72

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)
OCT , 1979										
01...	.08	7600	0	.12	.020	.14	.08	.020	.000	.02
NOV										
07...	.10	29730	0	--	--	.24	.15	.030	.030	.04
DEC										
06...	.11	16449	13	--	--	.18	.16	.010	.010	.01
JAN , 1980										
21...	.12	26365	2	--	--	.15	.15	.010	.000	.01
FEB										
20...	.12	30710	0	--	--	.18	.22	.000	.020	.00
MAR										
06...	.14	35610	0	--	--	.18	.17	.000	.000	.00
APR										
17...	.13	19299	0	.14	.000	.14	.17	.040	.020	.05
MAY										
13...	.11	33048	24	--	--	.11	--	.010	.000	.01
JUN										
09...	.09	33161	0	--	--	.09	.07	.000	.030	.00
JUL										
14...	.10	23250	10	--	.010	.00	.00	.010	.010	.01
AUG										
11...	.11	12213	1	--	--	.00	.00	.000	.010	.00
SEP										
10...	.10	18144	0	--	--	.00	.00	.000	.010	.00

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHATE, TOTAL (MG/L AS PO4)
OCT , 1979										
01...	.00	.57	.53	.59	.06	.53	.73	3.2	.020	--
NOV										
07...	.03	.34	.21	.37	.13	.24	.61	2.7	.030	--
DEC										
06...	.01	.46	.26	.47	.20	.27	.65	2.8	.110	--
JAN , 1980										
21...	.00	.18	.21	.19	.00	.21	.34	1.5	.040	--
FEB										
20...	.02	.10	.10	.10	.00	.12	.28	1.2	.050	--
MAR										
06...	.00	.77	.49	.77	.28	.49	.95	4.2	.030	--
APR										
17...	.02	.39	.48	.43	.00	.50	.57	2.5	.030	--
MAY										
13...	.00	.32	.37	.33	.00	.37	.44	1.9	.030	--
JUN										
09...	.03	.16	.02	.16	.11	.05	.25	1.1	.030	--
JUL										
14...	.01	1.4	.37	1.50	1.1	.38	1.5	6.6	.020	--
AUG										
11...	.01	.51	.44	.51	.06	.45	.51	2.2	.030	.03
SEP										
10...	.01	.81	.28	.81	.52	.29	.81	3.5	.030	.06

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

WATER QUALITY DATA OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
OCT , 1979										
01...	.06	.000	--	.040	.12	--	4.1	.3	2	245
NOV										
07...	.09	.040	--	--	--	2.4	--	--	3	1158
DEC										
06...	.34	.030	--	--	--	2.8	--	--	8	1585
JAN , 1980										
21...	.12	.030	--	--	--	--	2.0	.0	3	851
FEB										
20...	.15	.030	--	--	--	.9	--	--	2	653
MAR										
06...	.09	.010	--	--	--	1.3	--	--	4	1307
APR										
17...	.09	.020	--	.010	.03	--	3.3	.2	7	1365
MAY										
13...	.09	.010	--	--	--	3.3	--	--	8	3110
JUN										
09...	.09	.010	--	--	--	4.3	--	--	9	4325
JUL										
14...	.06	.040	--	.000	.00	--	1.8	.3	5	1472
AUG										
11...	.09	.020	.010	.010	.03	3.0	--	--	4	589
SEP										
10...	.09	.010	.020	.010	.03	.0	--	--	2	454

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT , 1979										
01...	1100	1	0	1	0	0	40	0	0	<1
DEC										
06...	1100	--	--	--	--	--	--	--	--	--
JAN , 1980										
21...	1200	2	1	1	200	200	40	2	1	<1
MAR										
06...	1230	--	--	--	--	--	--	--	--	--
APR										
17...	1130	1	0	1	200	200	30	1	--	<1
MAY										
13...	1130	--	--	--	--	--	--	--	--	<1
JUN										
09...	1145	--	--	--	--	--	--	--	--	--
JUL										
14...	1200	2	0	2	0	0	40	0	--	<1
AUG										
11...	1045	3	0	3	100	50	50	1	--	<1
SEP										
10...	1300	2	0	2	100	60	40	1	--	<1

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)
OCT , 1979										
01...	10	10	0	0	0	<3	1	0	1	40
DEC										
06...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
21...	0	0	0	1	0	<3	19	19	0	90
MAR										
06...	--	--	--	--	--	--	--	--	--	--
APR										
17...	0	0	0	0	--	<3	7	4	3	110
MAY										
13...	--	--	--	--	--	--	--	--	--	--
JUN										
09...	--	--	--	--	--	--	--	--	--	--
JUL										
14...	10	0	10	14	--	<3	0	0	3	230
AUG										
11...	0	0	10	2	--	<3	11	8	3	520
SEP										
10...	20	20	0	0	--	<3	7	6	1	150

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

WATER QUALITY DATA OCTOBER 1979 TO SEPTEMBER 1980

DATE	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)
OCT , 1979 01...	--	20	6	5	1	10	9	<1	.2	.2
DEC 06...	--	--	--	--	--	--	--	--	--	--
JAN , 1980 21...	80	10	14	11	3	10	7	3	.1	.1
MAR 06...	--	--	--	--	--	--	--	--	--	--
APR 17...	--	<10	4	2	2	10	--	<1	.0	.0
MAY 13...	--	--	--	--	--	--	--	--	--	--
JUN 09...	--	--	--	--	--	--	--	--	.1	.1
JUL 14...	220	10	19	16	3	20	20	1	.1	.0
AUG 11...	--	<10	5	4	1	0	0	1	.2	.1
SEP 10...	--	<10	3	1	2	10	9	1	.2	.0

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1979 01...	.0	0	0	0	0	0	0	10	7	3
DEC 06...	--	--	--	--	0	--	--	--	--	--
JAN , 1980 21...	.0	0	0	0	0	0	0	20	0	20
MAR 06...	--	--	--	--	1	--	--	--	--	--
APR 17...	.1	0	0	0	0	0	0	90	--	<3
MAY 13...	--	--	--	--	--	--	--	--	--	--
JUN 09...	.0	--	--	--	0	--	--	--	--	--
JUL 14...	.2	0	0	0	0	0	0	20	10	7
AUG 11...	.1	0	0	0	0	0	0	40	--	<3
SEP 10...	.5	0	0	0	0	0	0	20	10	6

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
OCT , 1979 01...	1100	14.0	17.3	52.8	18.1
APR , 1980 17...	1130	.551	.551	.070	.000
JUL 15...	1200	.157	.236	.040	.110

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	NOV 7,79	MAR 6,80	MAY 13,80	JUN 9,80
TIME	1100	1230	1130	1145
TOTAL CELLS/ML	690	7600	4700	7600
DIVERSITY: DIVISION	1.0	1.0	0.3	0.4
.CLASS	1.0	1.0	0.3	0.4
..ORDER	1.6	1.3	0.7	1.2
...FAMILY	2.2	1.3	0.8	1.8
....GENUS	2.2	1.5	1.7	2.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	14	2	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	170#	25	100	1	40	1	--	-
....CHODATELLA	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-
....SCENEDESMUS	58	8	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	14	2	--	-	*	0	42	1
...VOLVOCACEAE								
....PANDORINA	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	120#	17	4900#	64	180	4	480	6
....MELOSIRA	--	-	150	2	120	3	1300#	17
....STEPHANODISCUS	--	-	--	-	*	0	*	0
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	*	0
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	*	0	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	--	-	630	8
...FRAGILARIACEAE								
....ASTERIONELLA	290#	42	150	2	3200#	68	4100#	54
....FRAGILARIA	--	-	200	3	360	8	210	3
....SYNEDRA	--	-	100	1	580	12	42	1
...NAVICULACEAE								
....NAVICULA	--	-	--	-	*	0	*	0
...NITZSCHIACEAE								
....NITZSCHIA	29	4	--	-	*	0	63	1
...TABELLARIACEAE								
....TABELLARIA	--	-	--	-	--	-	150	2
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	120	3	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	2000#	26	--	-	500	7
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	50	1	--	-	--	-
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	*	0	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED, LESS THAN 1/2%

12472000 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	JUL 14,80	AUG 11,80	SEP 10,80
TIME	1200	1045	1300
TOTAL CELLS/ML	11000	6300	3100
DIVERSITY: DIVISION	1.0	1.0	1.3
.CLASS	1.0	1.0	1.3
..ORDER	1.7	1.6	2.0
...FAMILY	1.8	1.8	2.3
....GENUS	2.2	2.4	3.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	--	-	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	590	5	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	120	1	130	2	120	4
....CHODATELLA	--	-	--	-	36	1
....DICTYOSPHAERIUM	82	1	--	-	--	-
....OOCYSTIS	--	-	*	0	67	2
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	150	2	--	-
....CRUCIGENIA	--	-	--	-	67	2
....SCENEDESMUS	--	-	37	1	230	8
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	*	0	50	2
...VOLVOCACEAE						
....PANDORINA	490	5	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	560	5	630	10	540#	17
....MELOSIRA	490	5	580	9	440	14
....STEPHANODISCUS	250	2	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	--	-
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	--	-
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
...FRAGILARIACEAE						
....ASTERIONELLA	6700#	61	3100#	49	200	6
....FRAGILARIA	330	3	500	8	690#	22
....SYNEDRA	82	1	76	1	50	2
...NAVICULACEAE						
....NAVICULA	--	-	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	82	1	--	-	67	2
...TABELLARIACEAE						
....TABELLARIA	--	-	110	2	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	82	1	37	1	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	*	0	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	120	1	--	-	570#	18
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	870	8	930#	15	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..GYMNODINIALES						
...GYMNODINIACEAE						
....GYMNODINIUM	--	-	--	-	--	-
..PERIDINIALES						
...PERIDINIACEAE						
....PERIDINIUM	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	18.5	18.5	18.5	14.5	14.5	14.5	9.5	9.0	9.5	6.0	6.0	6.0
2	18.5	18.5	18.5	14.5	14.5	14.5	9.0	9.0	9.0	6.0	6.0	6.0
3	18.5	18.0	18.5	14.5	14.0	14.0	9.0	9.0	9.0	6.0	6.0	6.0
4	18.5	18.0	18.5	14.0	14.0	14.0	9.0	9.0	9.0	6.0	5.5	5.5
5	18.5	18.0	18.5	14.0	14.0	14.0	9.0	9.0	9.0	5.5	5.5	5.5
6	18.5	18.0	18.0	14.0	13.0	14.0	9.0	8.5	8.5	5.5	5.0	5.5
7	18.5	18.0	18.0	13.5	13.5	13.5	8.5	8.5	8.5	5.0	5.0	5.0
8	18.0	18.0	18.0	13.5	13.5	13.5	8.5	8.5	8.5	5.0	4.5	4.5
9	18.0	17.5	18.0	13.5	13.5	13.5	8.5	8.5	8.5	4.5	4.0	4.5
10	17.5	17.5	17.5	13.5	13.5	13.5	8.5	8.0	8.5	4.0	4.0	4.0
11	17.5	17.5	17.5	13.5	13.0	13.0	8.0	8.0	8.0	4.0	3.5	3.5
12	17.5	17.5	17.5	13.0	13.0	13.0	8.0	8.0	8.0	3.5	3.5	3.5
13	17.5	17.5	17.5	13.0	13.0	13.0	8.0	8.0	8.0	3.5	3.5	3.5
14	17.5	17.0	17.5	13.0	12.5	13.0	8.0	8.0	8.0	3.5	3.5	3.5
15	17.5	17.0	17.5	12.5	12.5	12.5	8.0	7.5	8.0	3.5	3.5	3.5
16	17.5	17.0	17.0	12.5	12.5	12.5	7.5	7.5	7.5	3.5	3.5	3.5
17	17.0	17.0	17.0	12.5	12.0	12.5	7.5	7.5	7.5	3.5	3.5	3.5
18	17.0	16.5	16.5	12.0	12.0	12.0	7.5	7.5	7.5	3.5	3.0	3.0
19	16.5	16.5	16.5	12.0	12.0	12.0	7.5	7.0	7.0	3.0	3.0	3.0
20	16.5	16.0	16.0	12.0	11.5	11.5	7.0	7.0	7.0	3.0	3.0	3.0
21	16.0	16.0	16.0	11.5	11.5	11.5	7.0	6.5	6.5	3.0	3.0	3.0
22	16.0	15.5	16.0	11.5	11.5	11.5	6.5	6.5	6.5	3.0	3.0	3.0
23	16.0	15.5	16.0	11.5	11.0	11.5	6.5	6.0	6.0	3.0	3.0	3.0
24	16.0	15.5	15.5	11.0	11.0	11.0	6.0	6.0	6.0	3.0	2.5	3.0
25	15.5	15.5	15.5	11.0	10.5	11.0	6.0	6.0	6.0	2.5	2.5	2.5
26	15.5	15.0	15.0	10.5	10.5	10.5	6.0	6.0	6.0	2.5	2.5	2.5
27	15.5	15.0	15.5	10.5	10.5	10.5	6.0	6.0	6.0	2.5	2.0	2.0
28	15.0	15.0	15.0	10.5	10.0	10.0	6.0	6.0	6.0	2.0	2.0	2.0
29	15.0	14.5	14.5	10.0	9.5	10.0	6.0	6.0	6.0	2.0	1.5	1.5
30	14.5	14.5	14.5	9.5	9.5	9.5	6.0	6.0	6.0	1.5	1.5	1.5
31	14.5	14.5	14.5	---	---	---	6.0	6.0	6.0	1.5	1.5	1.5
MONTH	18.5	14.5	17.0	14.5	9.5	12.5	9.5	6.0	7.5	6.0	1.5	3.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1.5	1.5	1.5	2.5	2.5	2.5	5.0	4.5	4.5	9.5	9.5	9.5
2	1.5	1.5	1.5	3.0	2.5	3.0	5.0	4.5	5.0	10.0	10.0	10.0
3	1.5	1.5	1.5	3.0	3.0	3.0	5.0	5.0	5.0	10.0	10.0	10.0
4	1.5	1.5	1.5	3.0	3.0	3.0	5.5	5.0	5.0	10.0	10.0	10.0
5	1.5	1.5	1.5	3.0	3.0	3.0	5.5	5.0	5.5	10.0	10.0	10.0
6	1.5	1.5	1.5	3.0	3.0	3.0	5.5	5.5	5.5	10.0	10.0	10.0
7	2.0	1.5	1.5	3.0	3.0	3.0	5.5	5.0	5.5	10.0	10.0	10.0
8	2.0	2.0	2.0	3.0	3.0	3.0	5.5	5.5	5.5	10.0	10.0	10.0
9	2.0	2.0	2.0	3.0	3.0	3.0	5.5	5.5	5.5	10.0	10.0	10.0
10	2.0	2.0	2.0	3.0	3.0	3.0	6.0	5.5	5.5	10.0	10.0	10.0
11	2.5	2.0	2.0	3.0	3.0	3.0	6.0	5.5	6.0	10.5	10.0	10.0
12	2.5	2.5	2.5	3.0	3.0	3.0	6.5	6.0	6.0	10.5	10.5	10.5
13	2.5	2.5	2.5	3.0	3.0	3.0	6.5	6.0	6.5	10.5	10.0	10.5
14	2.5	2.0	2.5	3.0	3.0	3.0	6.5	6.5	6.5	10.0	10.0	10.0
15	2.0	2.0	2.0	3.0	3.0	3.0	7.0	6.5	6.5	10.0	10.0	10.0
16	2.0	2.0	2.0	3.5	3.0	3.5	7.0	6.5	7.0	10.5	10.0	10.5
17	2.0	2.0	2.0	3.5	3.5	3.5	7.0	7.0	7.0	11.0	10.5	10.5
18	2.0	2.0	2.0	3.5	3.5	3.5	7.5	7.0	7.0	11.0	10.5	11.0
19	2.0	2.0	2.0	3.5	3.5	3.5	7.5	7.5	7.5	10.5	10.5	10.5
20	2.0	2.0	2.0	4.0	3.5	3.5	7.5	7.5	7.5	11.0	10.5	11.0
21	2.0	2.0	2.0	4.0	3.5	4.0	7.5	7.5	7.5	11.0	11.0	11.0
22	2.0	2.0	2.0	4.0	4.0	4.0	8.0	7.5	7.5	11.0	11.0	11.0
23	2.0	2.0	2.0	4.5	4.0	4.0	8.5	8.0	8.0	11.5	11.0	11.5
24	2.0	2.0	2.0	4.0	4.0	4.0	8.5	8.0	8.5	11.5	11.5	11.5
25	2.0	2.0	2.0	4.5	4.0	4.0	8.5	8.5	8.5	11.5	11.0	11.0
26	2.0	2.0	2.0	4.5	4.0	4.0	9.0	8.5	9.0	11.0	11.0	11.0
27	2.0	2.0	2.0	4.5	4.5	4.5	9.5	9.0	9.0	11.0	11.0	11.0
28	2.5	2.0	2.5	4.5	4.5	4.5	9.5	9.0	9.5	11.0	11.0	11.0
29	2.5	2.5	2.5	4.5	4.5	4.5	9.5	9.0	9.0	11.5	11.0	11.0
30	---	---	---	4.5	4.5	4.5	9.5	9.0	9.5	11.5	11.5	11.5
31	---	---	---	4.5	4.5	4.5	---	---	---	12.0	11.5	12.0
MONTH	2.5	1.5	2.0	4.5	2.5	3.5	9.5	4.5	7.0	12.0	9.5	10.5

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.0	12.0	12.0	15.5	15.0	15.0	19.0	18.5	18.5	18.0	18.0	18.0
2	12.0	11.5	11.5	15.5	15.0	15.5	18.5	18.5	18.5	18.0	18.0	18.0
3	11.5	11.5	11.5	15.5	15.5	15.5	18.5	18.0	18.5	17.5	17.5	17.5
4	12.0	11.5	12.0	15.5	15.5	15.5	18.5	18.0	18.5	18.0	17.5	18.0
5	12.5	12.0	12.0	15.5	15.5	15.5	18.5	18.0	18.5	18.0	17.5	18.0
6	12.5	12.0	12.5	15.5	15.5	15.5	18.5	18.0	18.0	18.5	18.0	18.0
7	12.5	12.5	12.5	15.5	15.5	15.5	18.5	18.0	18.5	18.5	18.0	18.5
8	13.0	12.5	13.0	16.0	15.5	16.0	18.5	18.0	18.0	18.5	18.0	18.5
9	13.0	12.5	13.0	16.0	16.0	16.0	18.5	18.0	18.0	18.5	18.0	18.5
10	13.0	12.5	12.5	16.0	16.0	16.0	18.5	18.0	18.5	18.5	18.5	18.5
11	13.0	13.0	13.0	16.0	16.0	16.0	18.5	18.5	18.5	18.5	18.5	18.5
12	13.0	13.0	13.0	16.0	16.0	16.0	18.5	18.5	18.5	18.5	18.5	18.5
13	13.0	13.0	13.0	16.5	16.0	16.5	19.0	18.5	18.5	18.5	18.0	18.0
14	13.5	13.0	13.0	16.5	16.5	16.5	18.5	18.5	18.5	18.5	18.0	18.0
15	13.5	13.5	13.5	16.5	16.5	16.5	18.5	18.0	18.5	18.5	18.0	18.5
16	14.0	13.5	14.0	17.0	16.5	16.5	18.5	18.0	18.0	19.0	18.5	18.5
17	14.0	14.0	14.0	17.0	16.5	17.0	18.0	18.0	18.0	19.0	18.5	19.0
18	14.0	14.0	14.0	17.0	17.0	17.0	18.0	17.5	18.0	19.0	18.5	18.5
19	14.0	14.0	14.0	17.0	17.0	17.0	18.0	17.5	18.0	18.5	18.0	18.5
20	14.5	14.0	14.0	17.5	17.0	17.0	18.5	17.5	18.0	18.0	18.0	18.0
21	14.5	14.0	14.5	17.5	17.0	17.5	18.5	18.0	18.0	18.0	17.5	17.5
22	14.5	14.5	14.5	18.0	17.5	17.5	18.5	18.0	18.5	17.5	17.5	17.5
23	14.5	14.5	14.5	18.0	17.5	18.0	18.5	18.0	18.5	17.5	17.5	17.5
24	14.5	14.5	14.5	18.0	17.5	18.0	18.5	18.0	18.5	17.5	17.0	17.5
25	14.5	14.5	14.5	18.0	17.5	18.0	18.5	18.5	18.5	17.5	17.5	17.5
26	14.5	14.5	14.5	18.5	17.5	18.0	18.5	18.5	18.5	17.5	17.5	17.5
27	14.5	14.5	14.5	18.5	18.0	18.5	18.5	18.5	18.5	18.0	17.5	17.5
28	14.5	14.5	14.5	18.5	18.5	18.5	18.5	18.0	18.0	18.0	17.5	17.5
29	14.5	14.5	14.5	19.0	18.0	18.5	18.0	18.0	18.0	18.0	17.5	17.5
30	15.0	14.5	14.5	19.0	18.5	18.5	18.0	18.0	18.0	17.5	17.5	17.5
31	---	---	---	19.0	18.5	18.5	18.0	18.0	18.0	---	---	---
MONTH	15.0	11.5	13.5	19.0	15.0	17.0	19.0	17.5	18.5	19.0	17.0	18.0
YEAR	19.0	1.5	11.0									

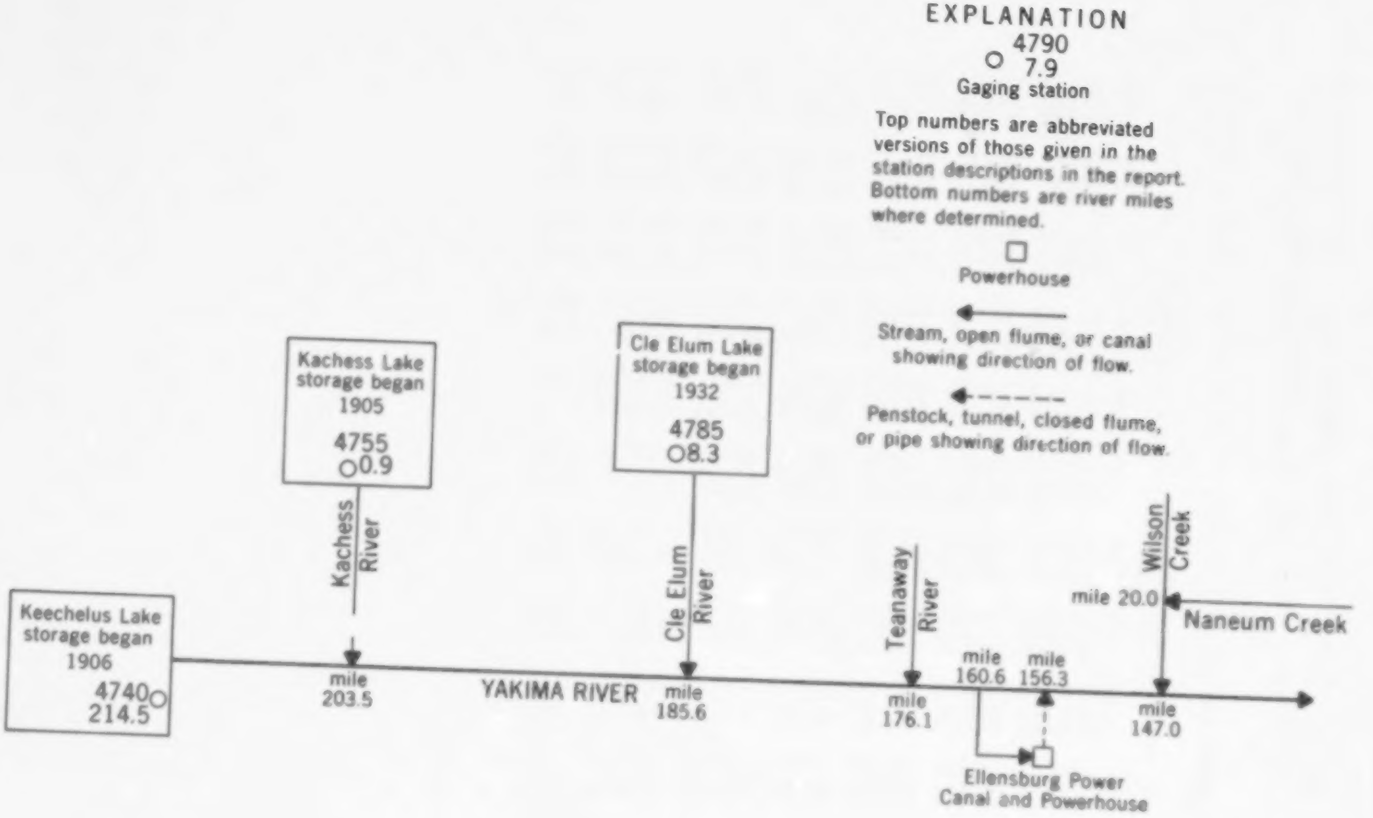
EXPLANATION
4790
7.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Keechelus Lake storage began 1906
4740
214.5
Kachess Lake storage began 1905
4755
0.9
Kachess River
mile 203.5
YAKIMA RIVER
Cle Elum Lake storage began 1932
4785
8.3
Cle Elum River
mile 185.6
Teanaway River
mile 176.1
mile 160.6
mile 156.3
Ellensburg Power Canal and Powerhouse
Wilson Creek
mile 20.0
Naneum Creek
mile 147.0

Figure 14. Gaging stations in Yakima River basin between Keechelus Lake and Naneum Creek.

12473510 COLUMBIA RIVER AT RINGOLD, WA

LOCATION.--Lat 46°29'16", long 119°15'15", in SE¼NW¼ sec.36, T.12 N., R.14 E., Franklin County, Hydrologic Unit 17020016, on left bank 0.5 mi (0.8 km) south of Ringold, 1.3 mi (2.1 km) upstream from Ringold wasteway 14 mi (22.5 km) northeast of Richland, 17.5 mi (28.2 km) above the Yakima River and at mile 352.7 (567.5 km).

DRAINAGE AREA.--96,800 mi^2 (251,000 km^2) approximately.

PERIOD OF RECORD.--October 1979 to current year (elevations only). Fragmentary records of gage height for previous years in files of Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 358.66 ft (109.320 m) June 19, 1980; minimum elevation, 346.67 ft (105.665 m) Sept. 29, 1980.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	348.65	351.05	351.82	350.71	352.78	348.76	351.54	---	355.81	352.66	351.19	349.03
2	351.65	351.69	351.95	350.74	351.65	348.38	351.16	---	355.81	353.44	351.59	349.86
3	350.85	351.14	349.27	352.62	350.26	350.07	350.60	353.08	355.52	353.99	350.78	350.42
4	350.75	349.71	351.72	354.08	350.84	351.43	350.55	352.49	354.54	353.93	350.75	350.87
5	350.15	350.14	352.01	351.81	351.98	351.44	350.41	352.64	354.98	353.23	351.70	350.34
6	349.35	351.21	351.62	353.09	352.84	351.91	350.34	353.87	355.47	353.23	350.55	349.85
7	348.40	352.24	350.81	353.62	352.35	350.89	351.09	354.96	355.52	352.95	350.76	348.98
8	349.35	351.93	350.56	354.45	352.43	350.29	351.83	354.44	354.96	352.56	350.90	349.00
9	350.25	352.73	350.08	352.73	351.42	349.88	350.44	354.55	355.97	352.57	350.79	349.86
10	350.25	351.40	351.78	352.15	351.70	350.30	350.62	353.88	355.53	352.80	350.20	349.70
11	351.15	352.10	353.71	352.50	351.07	351.88	350.27	352.33	355.64	352.93	350.45	349.62
12	351.10	351.08	353.88	350.20	353.69	352.84	348.68	353.41	355.89	352.41	352.00	349.19
13	351.90	352.65	353.09	351.24	353.05	352.06	348.78	354.59	355.67	352.11	351.30	348.79
14	350.35	352.80	351.75	351.80	353.80	352.20	349.03	354.79	355.03	352.38	352.38	347.49
15	348.80	351.33	350.56	351.27	354.13	352.10	350.96	354.73	355.22	352.57	352.11	348.43
16	350.55	354.51	351.30	350.18	352.84	351.63	350.13	354.09	355.52	352.37	351.54	350.61
17	351.85	351.42	352.54	350.51	352.24	351.42	349.68	352.79	357.21	352.50	350.47	350.39
18	352.40	351.50	352.03	352.79	351.06	351.40	349.96	351.86	357.79	352.31	350.43	350.06
19	352.05	351.62	350.73	352.56	351.21	351.10	349.17	352.20	357.52	352.87	350.54	350.21
20	351.90	352.41	350.14	351.44	351.90	350.85	348.74	354.14	356.45	352.71	350.84	349.37
21	349.68	353.33	351.46	351.45	351.33	349.52	348.94	352.85	356.85	352.49	350.39	348.09
22	350.35	352.76	352.04	351.74	350.80	348.93	349.33	354.38	355.92	352.43	350.87	348.71
23	350.45	351.19	351.89	351.12	350.09	348.63	348.37	355.24	355.90	351.79	350.64	349.01
24	350.55	351.36	351.09	351.73	350.20	349.42	349.08	353.78	355.84	352.09	349.53	349.49
25	350.56	350.74	349.73	352.39	350.98	350.32	350.79	353.14	356.28	351.88	350.84	349.95
26	350.13	351.09	349.41	352.70	350.97	350.47	349.92	352.55	355.63	351.45	353.06	349.51
27	349.28	351.88	351.09	352.74	350.93	351.10	348.49	353.05	355.55	350.27	351.39	348.78
28	348.73	352.98	352.59	353.35	350.30	350.52	351.44	353.38	354.26	351.14	350.87	348.43
29	348.91	352.33	352.68	353.90	350.48	349.73	353.07	355.11	354.22	351.84	351.15	348.07
30	350.77	352.36	351.50	353.79	---	349.68	352.76	354.49	354.42	351.48	351.16	349.53
31	352.41	---	351.10	354.27	---	350.43	---	354.86	---	351.71	350.04	---
MEAN	350.43	351.85	351.48	352.25	351.68	350.64	350.21	---	355.69	352.42	351.01	349.39
MAX	352.41	354.51	353.88	354.45	354.13	352.84	353.07	---	357.79	353.99	353.06	350.87
MIN	348.40	349.71	349.27	350.18	350.09	348.38	348.37	---	354.22	350.27	349.53	347.49

12473520 COLUMBIA RIVER AT RICHLAND, WA

LOCATION.--Lat 46°18'46", long 119°15'28", in NW¼NW¼ sec.36, T.10 N., R.28 E., Benton County, Hydrologic Unit 17020016, at city of Richland pumping plant, 4.8 mi (7.7 km) upstream from Yakima River, and at river mile 340.2 (547.4 km).

DRAINAGE AREA.--96,900 mi^2 (251,000 km^2), approximately.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1974 to current year.

INSTRUMENTATION.--Water-temperature recorder with probe located at city of Richland pumping plant pier near right bank from July 1974 until January 1977. Since January 1977, recorder probe located 200 ft (61 m) streamward from plant.

REMARKS.--Water temperatures as recorded for the period July 1974 to January 1977 did not represent mean stream temperatures (see previous State reports for correlation between thermal load measurements and recorded temperatures). Temperature probe relocated January 1977 reflect mean river water temperature.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.5°C Aug. 17-20, 1977; minimum, 0.5°C Feb. 1-4, 1979.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 21.0°C July 28; minimum, 1.2°C Jan. 30 to Feb. 1.

WATER QUALITY DATA OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT , 1979												
01...	1500	129	8.5	13.9	.60	10.0	6	40	61	11	17	18
JAN , 1980												
23...	1400	141	8.0	2.8	13	13.6	1	7	71	10	18	21
APR												
16...	1030	162	7.6	7.8	1.5	13.1	1	--	73	15	18	21
MAY												
14...	1100	128	7.3	10.6	--	11.6	--	--	--	--	--	--
JUN												
12...	1030	114	7.4	13.1	--	11.0	--	--	--	--	--	--
JUL												
15...	1100	140	8.2	16.8	1.8	10.3	5	29	62	7	17	18

DATE	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	MAGNE-SIUM, SUS-PENDED TOTAL (MG/L AS MG)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SODIUM+ POTAS-SIUM DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT , 1979												
01...	4.6	.6	4.0	2.7	2.8	8	.1	3.6	1.0	.8	50	11
JAN , 1980												
23...	4.4	.0	4.5	3.4	1.8	5	.0	2.5	.6	.7	61	12
APR												
16...	4.0	.0	5.0	2.6	2.5	6	.1	--	.7	1.0	58	15
MAY												
14...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
12...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
15...	4.2	.0	4.2	2.6	2.5	7	.1	--	.8	.8	55	9.6

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)
OCT , 1979												
01...	1.1	.1	4.1	72	71	.11	.020	.13	.020	.02	.25	.27
JAN , 1980												
23...	.9	.1	4.4	90	82	.09	.000	.09	.010	.01	.86	.87
APR												
16...	2.0	.2	4.7	87	86	.14	.000	.14	.080	.10	1.0	1.10
MAY												
14...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
12...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
15...	1.0	.2	4.5	77	73	--	.000	--	.000	.00	.40	.40

12473520 COLUMBIA RIVER AT RICHLAND, WA--Continued

WATER QUALITY DATA OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)
OCT , 1979												
01...	.40	1.7	.020	.06	.040	.12	1	--	2	1	10	0
JAN , 1980												
23...	.96	4.2	.010	.03	--	--	1	0	1	0	0	1
APR												
16...	1.2	5.4	.020	.06	--	--	2	1	1	1	0	0
MAY												
14...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
12...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
15...	3.5	15	.030	.09	--	--	3	1	2	2	0	0

DATE	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)
OCT , 1979											
01...	1	40	6	8	.0	--	--	0	10	1.9	7
JAN , 1980											
23...	12	60	4	20	.1	--	--	0	20	1.5	2
APR											
16...	8	140	16	10	.3	--	--	0	30	1.7	9
MAY											
14...	--	--	--	--	.6	.0	.8	--	--	--	--
JUN											
12...	--	--	--	--	.5	.5	.0	--	--	--	--
JUL											
15...	5	130	4	10	.3	.1	.2	0	30	4.4	8

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.0	18.5	19.0	14.0	14.0	14.0	---	---	---	6.0	6.0	6.0
2	19.0	18.5	18.5	14.0	14.0	14.0	---	---	---	6.0	6.0	6.0
3	19.0	18.0	18.5	14.0	14.0	14.0	---	---	---	6.0	6.0	6.0
4	18.[illegible]	18.0	18.5	14.0	13.5	14.0	---	---	---	6.0	6.0	6.0
5	19.[illegible]	1[illegible].0	18.5	13.5	13.5	13.5	---	---	---	6.0	5.5	6.0
6	19.0	18.0	18.5	13.5	13.5	13.5	9.0	8.5	9.0	5.5	5.0	5.5
7	19.0	18.5	18.5	---	---	---	9.0	8.5	9.0	5.0	5.0	5.0
8	18.5	18.0	18.5	---	---	---	9.0	8.5	8.5	5.0	4.5	4.5
9	18.0	17.5	17.5	---	---	---	8.5	8.5	8.5	4.5	4.5	4.5
10	18.0	17.5	18.0	---	---	---	8.5	8.0	8.5	4.5	3.5	4.0
11	18.0	17.5	17.5	---	---	---	8.0	7.5	8.0	3.5	3.5	3.5
12	18.0	17.5	17.5	---	---	---	8.0	7.5	7.5	4.0	3.5	3.5
13	18.0	17.5	17.5	---	---	---	8.0	8.0	8.0	4.0	4.0	4.0
14	17.5	17.5	17.5	---	---	---	8.0	8.0	8.0	4.0	4.0	4.0
15	18.0	17.5	17.5	---	---	---	8.0	7.5	8.0	4.0	3.5	4.0
16	17.5	17.0	17.5	---	---	---	7.5	7.5	7.5	4.0	3.5	3.5
17	17.0	17.0	17.0	---	---	---	7.5	7.5	7.5	4.0	3.5	3.5
18	17.0	16.0	16.5	---	---	---	7.5	7.5	7.5	3.5	3.0	3.5
19	16.0	16.0	16.0	---	---	---	7.5	7.5	7.5	3.0	3.0	3.0
20	16.0	16.0	16.0	---	---	---	7.5	7.0	7.0	3.0	3.0	3.0
21	16.0	15.5	16.0	---	---	---	7.0	7.0	7.0	3.0	3.0	3.0
22	15.5	15.5	15.5	---	---	---	7.0	6.5	6.5	3.0	3.0	3.0
23	15.5	15.5	15.5	---	---	---	6.5	6.0	6.0	3.0	3.0	3.0
24	15.5	15.5	15.5	---	---	---	6.0	6.0	6.0	3.0	3.0	3.0
25	15.5	15.5	15.5	---	---	---	6.0	6.0	6.0	3.0	2.5	2.5
26	15.5	15.0	15.5	---	---	---	6.0	6.0	6.0	2.5	1.5	2.0
27	15.5	15.0	15.5	---	---	---	6.0	6.0	6.0	1.5	1.5	1.5
28	15.5	15.0	15.0	---	---	---	6.0	6.0	6.0	1.5	1.5	1.5
29	15.0	14.5	14.5	---	---	---	6.0	6.0	6.0	1.5	1.5	1.5
30	14.5	14.0	14.5	---	---	---	6.0	6.0	6.0	1.5	1.0	1.5
31	14.0	14.0	14.0	---	---	---	6.0	6.0	6.0	1.0	1.0	1.0
MONTH	19.0	14.0	17.0	14.0	13.5	14.0	9.0	6.0	7.0	6.0	1.0	3.5

12473520 COLUMBIA RIVER AT RICHLAND, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1.5	1.0	1.5	4.0	3.5	3.5	6.0	5.5	5.5	11.0	10.0	10.5
2	1.5	1.5	1.5	4.5	4.0	4.0	6.0	5.5	5.5	11.5	10.5	11.0
3	2.0	1.5	2.0	4.0	4.0	4.0	6.5	5.5	6.0	11.5	10.5	11.0
4	2.0	2.0	2.0	4.0	3.5	4.0	7.0	6.0	6.5	11.5	11.0	11.5
5	2.0	2.0	2.0	4.0	3.0	3.5	7.0	6.5	6.5	11.5	10.5	11.0
6	2.0	2.0	2.0	3.0	3.0	3.0	6.5	6.0	6.5	11.5	10.5	11.0
7	2.0	2.0	2.0	3.5	3.0	3.5	6.5	6.0	6.5	11.0	10.5	11.0
8	2.5	2.0	2.0	4.0	3.5	3.5	7.0	6.0	6.0	11.0	10.5	11.0
9	2.5	2.5	2.5	4.0	4.0	4.0	7.0	6.5	7.0	11.0	10.0	10.5
10	2.5	2.5	2.5	4.0	3.5	4.0	7.5	7.0	7.0	11.5	10.5	11.0
11	2.5	2.5	2.5	4.0	4.0	4.0	8.5	7.0	8.0	11.5	11.0	11.5
12	2.5	2.5	2.5	4.0	3.5	3.5	8.5	8.0	8.5	12.0	10.5	11.0
13	2.5	2.5	2.5	3.5	3.5	3.5	8.5	7.5	8.0	---	---	---
14	2.5	2.0	2.0	4.0	3.5	4.0	8.5	8.0	8.0	10.5	10.5	10.5
15	2.0	2.0	2.0	4.0	3.5	4.0	9.0	8.0	8.5	11.0	10.5	10.5
16	2.0	2.0	2.0	4.0	3.5	3.5	---	---	---	11.5	10.0	10.5
17	2.0	2.0	2.0	4.0	4.0	4.0	---	---	---	12.0	10.5	11.0
18	2.5	2.0	2.0	4.5	4.0	4.0	---	---	---	12.0	11.0	11.5
19	2.5	2.5	2.5	4.5	4.0	4.5	---	---	---	12.0	11.0	11.5
20	3.0	2.5	2.5	4.5	4.5	4.5	---	---	---	12.0	11.0	11.5
21	3.0	2.5	2.5	5.5	4.5	5.0	9.5	9.0	9.0	12.5	11.5	12.0
22	2.5	2.5	2.5	5.5	5.0	5.5	9.5	8.5	9.0	12.0	11.5	12.0
23	3.0	2.5	3.0	5.5	5.5	5.5	10.0	9.5	10.0	12.0	11.0	11.5
24	3.0	2.5	3.0	5.5	5.5	5.5	10.5	10.0	10.0	12.0	11.5	11.5
25	3.0	3.0	3.0	5.5	5.0	5.5	10.5	9.5	10.0	11.5	11.5	11.5
26	3.0	3.0	3.0	5.5	5.0	5.5	10.5	9.5	10.0	11.5	11.0	11.5
27	3.0	3.0	3.0	5.5	5.0	5.0	11.5	10.5	11.0	11.5	11.0	11.0
28	3.5	3.0	3.5	5.5	5.5	5.5	10.5	10.0	10.0	12.0	11.0	11.5
29	3.5	3.5	3.5	5.5	5.5	5.5	10.0	9.5	10.0	12.0	11.0	12.0
30	---	---	---	6.0	5.5	5.5	10.5	9.5	10.5	12.5	11.5	12.0
31	---	---	---	6.0	5.5	6.0	---	---	---	13.0	12.0	12.5
MONTH	3.5	1.0	2.5	6.0	3.0	4.5	11.5	5.5	8.0	13.0	10.0	11.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.5	12.0	12.5	16.5	15.0	15.5	20.0	19.0	19.5	18.0	17.5	17.5
2	12.5	11.5	12.0	16.5	15.5	16.0	19.5	19.0	19.0	18.5	17.5	18.0
3	12.5	11.5	12.0	16.0	15.5	16.0	19.0	18.0	18.5	18.0	17.0	17.5
4	13.0	11.5	12.5	16.0	15.5	15.5	19.5	18.5	19.0	18.0	17.0	17.5
5	13.0	12.5	12.5	16.5	15.5	16.0	19.0	18.0	18.5	18.5	17.5	18.0
6	13.0	12.5	13.0	17.0	15.5	16.5	19.5	18.0	18.5	19.0	18.0	18.5
7	13.5	12.5	13.0	17.0	16.0	16.5	19.5	18.5	19.0	19.0	18.0	18.5
8	14.0	13.0	13.5	17.0	16.5	17.0	19.0	18.0	18.5	18.5	18.0	18.5
9	14.0	13.5	13.5	17.5	16.5	17.0	19.5	18.0	18.5	19.0	18.0	18.5
10	14.0	13.0	13.5	17.0	16.5	17.0	19.5	18.5	19.0	19.0	18.5	18.5
11	14.0	13.0	13.5	17.0	16.0	16.5	19.5	19.0	19.5	19.0	18.5	18.5
12	13.5	13.0	13.5	17.0	16.0	16.5	20.0	18.5	19.0	19.0	18.5	18.5
13	13.5	13.0	13.0	17.5	16.5	17.0	20.0	18.5	19.0	18.5	18.0	18.5
14	14.0	13.0	13.5	17.5	17.0	17.0	20.0	19.0	19.5	18.5	17.5	18.0
15	14.5	13.5	14.0	17.5	16.5	17.0	19.5	18.5	19.0	19.0	18.0	18.5
16	15.0	14.0	14.5	17.5	16.5	17.0	19.0	18.0	18.5	19.0	18.5	18.5
17	15.0	14.0	14.5	18.0	16.5	17.5	19.0	18.0	18.0	19.5	18.5	19.0
18	15.0	14.0	15.0	18.0	17.0	17.5	18.0	17.5	17.5	19.0	18.0	18.5
19	15.0	14.5	14.5	18.0	17.0	17.5	18.5	17.0	18.0	18.0	17.5	18.0
20	15.0	14.5	14.5	18.5	17.0	17.5	19.0	18.0	18.5	18.0	17.5	17.5
21	15.5	14.5	15.0	19.0	17.5	18.0	19.0	18.0	18.5	17.5	17.0	17.0
22	15.0	14.5	15.0	19.0	17.5	18.5	19.5	18.0	18.5	17.0	17.0	17.0
23	15.5	14.5	15.0	19.0	18.0	18.5	19.5	18.0	19.0	17.5	17.0	17.5
24	15.5	15.0	15.0	19.0	18.0	18.5	19.0	18.5	19.0	17.5	17.0	17.5
25	15.5	15.0	15.0	19.0	18.0	18.5	19.0	18.0	18.5	17.5	17.0	17.0
26	15.0	14.5	14.5	19.5	18.0	18.5	19.0	18.0	18.5	17.5	17.0	17.0
27	15.0	14.5	15.0	19.5	18.5	19.0	18.5	18.0	18.5	18.0	17.0	17.5
28	16.0	14.5	15.5	20.0	19.0	19.5	18.5	18.0	18.0	17.5	17.5	17.5
29	16.0	15.0	15.5	19.5	18.5	19.0	18.5	18.0	18.0	18.0	17.5	17.5
30	16.0	14.5	15.5	19.5	18.5	19.0	18.0	17.5	18.0	18.0	17.5	17.5
31	---	---	---	19.5	18.5	19.0	18.5	17.5	18.0	---	---	---
MONTH	16.0	11.5	14.0	20.0	15.0	17.5	20.0	17.0	18.5	19.5	17.0	18.0
YEAR	20.0	1.0	11.5									

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA

LOCATION.--Lat 46 43'47", long 119 02'56", in NE¼SE¼ sec.4, T.14 N., R.30 E., Franklin County, Hydrologic Unit 17020016, at State Highway 17, 400 ft (122 m) upstream from entrance to the Potholes Canal, 1.3 mi (2.1 km) upstream from entrance to Scootenay Reservoir, and 9.2 mi (14.8 km) southeast of Othello.

DRAINAGE AREA.--121 mi^2 (313 km^2).

PERIOD OF RECORD.--March 1978 to October 1979 (discontinued).

GAGE.--Dual water-stage recorders and automatic water-quality sampler. Altitude of gage is 935 ft (285 m) from topographic map.

REMARKS.--Water-discharge records previously published (U.S. Geological Survey, 1979, 1980) in Part 2 "Water Resources Data for Washington.

COOPERATION.--South Columbia Basin Irrigation District.

EXTREMES FOR IRRIGATION AND NONIRRIGATION SEASONS

Constituent	1978 Irrigation Season March 21 to October 31				1978-79 Nonirrigation season November 1, 1978 to March 31, 1979				1979 Irrigation season April 1 to October 31			
	Maximum	Date	Minimum	Date	Maximum	Date	Minimum	Date	Maximum	Date	Minimum	Date
Observed water temperature (deg C)	22.5	7/26	8.0	4/5,17,23	12.5	3/21,25,29	0.5	1/10	22.5	7/19,20	9.0	4/13
Total nitrogen (as N)												
Concentration (mg/L)	7.8	3/21	1.1	9/15	13.0	12/4-6	3.0	3/11-13	6.8	10/31	1.2	7/19,20;8/8
Load (pounds/day)	5,534	7/2	539	10/30,31	9,280	2/10	405	3/13	4,902	7/25	476	4/6
Total for period (pounds)			520,828			174,733				531,831		
Total nitrate-plus-nitrite (as N)												
Concentration (mg/L)	6.9	3/21	0.58	9/15	9.0	1/6-8	2.1	2/10 3/11,12,13	6.0	10/31	0.66	7/19,20
Load (pounds/day)	3,641	7/2	435	9/15	2,911	2/10	283	3/13	3,204	8/14	291	4/6
Total for period (pounds)			397,448			133,023				411,044		
Total phosphorus (as P)												
Concentration (mg/L)	0.42	7/1	0.05	4/6, 10/26,27, 30,31	2.1	2/10	0.0	12/15-17	0.26	8/15,16 9/16,17	0	9/12,13
Load (pounds/day)	597	7/1	9	10/29	2,911	2/10	0	12/15-17	320	8/15	0	9/12,13
Total for period (pounds)			37,093			7,946				19,273		
Total orthophosphorus (as P)												
Concentration (mg/L)	0.12	7/2	0.01	3/21-28 5/2, 9/15, 16,18	—	—	—	—	—	—	—	—
Load (pounds/day)	175	7/2	1	3/21	—	—	—	—	—	—	—	—
Total for period (tons)			8,765			—				—		
Suspended sediment												
Concentration (mg/L)	205	7/1	11	3/27	816	2/10	2	1/11	175	5/10	10	10/27-31
Load (tons/day)	136	7/1	2.7	10/29,30/31	566	2/10	0.09	1/11	58	5/11	1.3	10/29,30,31
Total for period (tons)			8,606.8			1,446.15				5,655.8		
Water discharge, total												
($ft^3/s/days$)			33,984			4,300				31,904		
(ac-ft)			67,410			8,530				63,280		

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA--Continued

DATE	MEAN DISCHARGE (CFS)	SUSPENDED SEDIMENT		NITROGEN TOTAL (AS N)		NITRITE+NITRATE TOTAL (AS N)		PHOSPHORUS TOTAL (AS P)		ORTHOPHOSPHATE TOTAL (AS P)	
		MEAN CONCEN-TRATION (MG/L)	DISCHARGE (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)
MAR.1978											
1	25.	15.	1.0	8.00	1080.	7.50	1010.	0.05	6.7	0.03	4.0
2	25.	15.	1.0	8.00	1080.	7.50	1010.	0.05	6.7	0.03	4.0
3	25.	15.	1.0	8.00	1080.	7.40	998.	0.05	6.7	0.03	4.0
4	24.	15.	0.97	7.90	1020.	7.40	958.	0.05	6.5	0.03	3.9
5	24.	15.	0.97	7.90	1020.	7.40	958.	0.05	6.5	0.03	3.9
6	24.	15.	0.97	7.90	1020.	7.40	958.	0.05	6.5	0.03	3.9
7	25.	15.	1.0	7.90	1070.	7.40	998.	0.05	6.7	0.03	4.0
8	25.	15.	1.0	7.80	1050.	7.30	984.	0.05	6.7	0.03	4.0
9	25.	15.	1.0	7.80	1050.	7.30	984.	0.05	6.7	0.03	4.0
10	25.	15.	1.0	7.80	1050.	7.30	984.	0.05	6.7	0.03	4.0
11	25.	15.	1.0	7.80	1050.	7.20	971.	0.05	6.7	0.03	4.0
12	24.	15.	0.97	7.80	1010.	7.20	932.	0.05	6.5	0.03	3.9
13	24.	15.	0.97	7.80	1010.	7.20	932.	0.05	6.5	0.03	3.9
14	23.	15.	0.93	7.80	968.	7.20	893.	0.04	5.0	0.03	3.7
15	23.	15.	0.93	7.80	968.	7.20	893.	0.07	8.7	0.02	2.5
16	23.	15.	0.93	7.80	968.	7.10	881.	0.07	8.7	0.02	2.5
17	24.	15.	0.97	7.70	997.	7.10	919.	0.08	10.	0.02	2.6
18	24.	15.	0.97	7.60	984.	7.00	906.	0.09	12.	0.04	5.2
19	23.	15.	0.93	7.60	943.	6.90	856.	0.09	11.	0.02	2.5
20	22.	10.	0.59	7.50	890.	6.80	807.	0.10	12.	0.01	1.2
21	23.	64.	4.0	7.80	968.	6.90	856.	0.14	17.	0.01	1.2
22	41.	45.	5.0	7.70	1700.	6.80	1500.	0.13	29.	0.01	2.2
23	30.	31.	2.5	7.60	1230.	6.80	1100.	0.11	18.	0.01	1.6
24	29.	22.	1.7	7.50	1170.	6.70	1050.	0.10	16.	0.01	1.6
25	50.	17.	2.3	7.50	2020.	6.60	1780.	0.09	24.	0.01	2.7
26	50.	14.	1.9	7.40	2000.	6.60	1780.	0.08	22.	0.01	2.7
27	50.	11.	1.5	7.30	1970.	6.50	1750.	0.07	19.	0.01	2.7
28	51.	16.	2.2	7.20	1980.	6.40	1760.	0.08	22.	0.01	2.8
29	53.	25.	3.6	5.90	1690.	5.20	1490.	0.09	26.	0.02	5.7
30	55.	34.	5.0	3.40	1010.	2.80	831.	0.10	30.	0.03	8.9
31	58.	22.	3.4	3.90	1220.	3.20	1000.	0.11	34.	0.03	9.4
TOTALS	972.00		52.20		37265.92		33728.96		410.50		113.20
APR.1978											
1	60.	25.	4.0	3.30	1070.	2.70	874.	0.10	32.	0.03	9.7
2	60.	28.	4.5	2.90	939.	2.30	744.	0.09	29.	0.03	9.7
3	60.	32.	5.2	2.50	809.	2.00	647.	0.08	26.	0.03	9.7
4	58.	24.	3.8	2.80	876.	2.20	688.	0.07	22.	0.03	9.4
5	58.	32.	5.0	3.30	1030.	2.50	782.	0.06	19.	0.02	6.3
6	58.	30.	4.7	3.10	970.	2.50	782.	0.05	16.	0.02	6.3
7	68.	34.	6.2	2.90	1060.	2.30	844.	0.06	22.	0.02	7.3
8	72.	40.	7.8	2.60	1010.	2.00	777.	0.06	23.	0.02	7.8
9	73.	48.	9.5	2.30	906.	1.80	709.	0.07	28.	0.02	7.9
10	77.	40.	8.3	2.30	955.	1.80	748.	0.09	37.	0.02	8.3
11	75.	23.	4.7	2.50	1010.	1.90	769.	0.12	49.	0.03	12.
12	84.	21.	4.8	2.30	1040.	1.80	816.	0.12	54.	0.04	18.
13	89.	47.	11.	2.60	1250.	1.80	864.	0.16	77.	0.04	19.
14	83.	82.	18.	2.90	1300.	2.10	940.	0.14	63.	0.05	22.
15	91.	42.	10.	3.60	1770.	2.80	1370.	0.10	49.	0.06	29.
16	102.	43.	12.	2.90	1600.	2.10	1160.	0.11	61.	0.06	33.
17	109.	44.	13.	2.40	1410.	1.60	941.	0.13	76.	0.06	35.
18	104.	46.	13.	2.40	1350.	1.70	954.	0.13	73.	0.06	34.
19	101.	47.	13.	2.50	1360.	1.80	981.	0.12	65.	0.06	33.
20	92.	56.	14.	2.60	1290.	1.90	943.	0.10	50.	0.05	25.
21	75.	39.	7.9	2.60	1050.	2.10	850.	0.09	36.	0.05	20.
22	83.	40.	9.0	2.40	1070.	1.90	851.	0.08	36.	0.04	18.
23	91.	42.	10.	2.50	1230.	2.10	1030.	0.08	39.	0.04	20.
24	92.	44.	11.	2.40	1190.	2.00	992.	0.08	40.	0.04	20.
25	94.	45.	11.	2.40	1220.	1.90	963.	0.09	46.	0.04	20.
26	116.	47.	15.	2.30	1440.	1.80	1130.	0.12	75.	0.04	25.
27	106.	49.	14.	2.20	1260.	1.70	972.	0.11	63.	0.05	29.
28	101.	51.	14.	2.70	1470.	1.90	1040.	0.19	104.	0.04	22.
29	100.	53.	14.	2.50	1350.	1.80	971.	0.15	81.	0.06	32.
30	100.	55.	15.	2.70	1460.	2.00	1060.	0.13	70.	0.04	22.
TOTALS	2532.00		293.40		35744.91		27211.98		1461.00		570.40

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA--Continued

DATE	MEAN DISCHARGE (CFS)	SUSPENDED SEDIMENT		NITROGEN TOTAL (AS N)		NITRITE+NITRATE TOTAL (AS N)		PHOSPHORUS TOTAL (AS P)		ORTHOPHOSPHATE TOTAL (AS P)	
		MEAN CONCEN- TRATION (MG/L)	DISCHARGE (TONS/DAY)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (LBS/DAY)
MAY 1978											
1	96.	57.	15.	2.40	1450.	2.10	1090.	0.10	52.	0.04	21.
2	92.	59.	15.	2.70	1340.	2.10	1040.	0.11	55.	0.01	5.0
3	95.	61.	16.	2.60	1330.	2.00	1020.	0.12	61.	0.04	20.
4	99.	64.	17.	2.60	1390.	2.00	1070.	0.12	64.	0.04	21.
5	103.	66.	18.	2.50	1390.	1.90	1060.	0.11	61.	0.04	22.
6	102.	69.	19.	3.10	1710.	2.60	1430.	0.12	66.	0.06	33.
7	99.	71.	19.	3.00	1600.	2.60	1390.	0.12	64.	0.05	27.
8	101.	74.	20.	2.30	1250.	1.80	981.	0.12	65.	0.05	27.
9	109.	77.	23.	2.30	1350.	1.80	1060.	0.12	71.	0.05	29.
10	124.	80.	27.	2.50	1670.	1.80	1200.	0.15	100.	0.06	40.
11	141.	83.	32.	2.20	1670.	1.60	1220.	0.15	114.	0.04	30.
12	148.	86.	34.	2.10	1680.	1.50	1200.	0.17	136.	0.04	32.
13	160.	89.	38.	2.10	1810.	1.50	1290.	0.16	138.	0.04	35.
14	161.	93.	40.	2.20	1910.	1.60	1390.	0.16	139.	0.04	35.
15	168.	96.	44.	2.20	1990.	1.60	1450.	0.14	127.	0.04	36.
16	156.	100.	42.	2.20	1850.	1.60	1350.	0.12	101.	0.04	34.
17	140.	99.	37.	2.40	1810.	1.90	1430.	0.10	76.	0.04	30.
18	139.	99.	37.	2.40	1800.	1.90	1420.	0.10	75.	0.04	30.
19	147.	98.	39.	2.20	1740.	1.80	1430.	0.11	87.	0.04	32.
20	144.	97.	38.	2.30	1790.	1.80	1400.	0.12	93.	0.04	31.
21	138.	96.	36.	2.30	1710.	1.80	1340.	0.12	89.	0.05	37.
22	140.	96.	36.	2.30	1740.	1.80	1360.	0.11	83.	0.04	30.
23	144.	95.	37.	2.30	1790.	1.80	1400.	0.16	124.	0.04	31.
24	137.	141.	52.	2.40	1770.	1.90	1400.	0.11	81.	0.04	30.
25	142.	136.	52.	2.40	1840.	1.90	1460.	0.10	77.	0.05	38.
26	150.	132.	53.	2.30	1860.	1.80	1460.	0.13	105.	0.05	40.
27	159.	127.	55.	2.50	2140.	1.80	1540.	0.28	240.	0.05	43.
28	159.	123.	53.	2.50	2140.	1.80	1540.	0.29	249.	0.05	43.
29	160.	119.	51.	2.50	2160.	1.80	1550.	0.32	276.	0.04	35.
30	164.	115.	51.	2.50	2210.	1.80	1590.	0.29	257.	0.05	44.
31	163.	111.	49.	2.70	2370.	1.90	1670.	0.33	290.	0.05	44.
TOTALS	4180.00		1095.00		54259.89		41230.89		3616.00		985.00
JUN.1978											
1	167.	108.	49.	2.80	2520.	2.10	1890.	0.29	261.	0.05	45.
2	164.	104.	46.	2.50	2210.	1.80	1590.	0.21	186.	0.06	53.
3	155.	101.	42.	2.70	2260.	1.90	1590.	0.25	209.	0.06	50.
4	159.	97.	42.	2.60	2230.	1.80	1543.	0.25	214.	0.06	51.
5	160.	94.	41.	2.60	2240.	1.80	1550.	0.27	233.	0.06	52.
6	162.	99.	43.	2.70	2360.	1.90	1660.	0.29	253.	0.08	70.
7	172.	116.	54.	2.90	2690.	2.00	1860.	0.29	269.	0.06	56.
8	177.	121.	58.	2.70	2580.	1.80	1720.	0.34	325.	0.08	76.
9	193.	126.	66.	2.70	2810.	1.80	1870.	0.34	354.	0.08	83.
10	204.	122.	67.	3.00	3300.	2.00	2200.	0.33	363.	0.07	77.
11	200.	164.	89.	2.80	3020.	1.90	2050.	0.40	432.	0.07	76.
12	184.	141.	70.	2.90	2880.	2.00	1980.	0.33	328.	0.08	79.
13	212.	138.	79.	2.70	3090.	1.90	2170.	0.31	354.	0.06	69.
14	219.	116.	69.	2.80	3310.	2.00	2360.	0.31	366.	0.06	71.
15	227.	138.	85.	2.90	3550.	2.00	2450.	0.31	380.	0.06	73.
16	218.	88.	52.	2.80	3290.	2.10	2470.	0.20	235.	0.05	59.
17	205.	81.	45.	3.10	3430.	2.30	2540.	0.22	243.	0.04	[illegible]
18	198.	79.	42.	3.20	3420.	2.40	2560.	0.21	224.	0.04	43.
19	192.	76.	39.	3.10	3210.	2.40	2490.	0.21	217.	0.05	52.
20	191.	80.	41.	3.00	3090.	2.30	2370.	0.19	196.	0.05	52.
21	188.	88.	45.	3.00	3040.	2.30	2330.	0.20	203.	0.04	41.
22	191.	124.	64.	3.00	3090.	2.30	2370.	0.21	216.	0.04	41.
23	192.	86.	45.	3.00	3110.	2.20	2280.	0.21	217.	0.05	52.
24	208.	90.	51.	2.70	3030.	2.00	2240.	0.26	292.	0.06	67.
25	217.	89.	52.	2.50	2930.	1.90	2220.	0.23	269.	0.06	70.
26	195.	70.	37.	2.70	2840.	2.00	2100.	0.22	231.	0.06	63.
27	180.	93.	45.	2.90	2820.	2.20	2140.	0.23	223.	0.07	68.
28	168.	110.	50.	3.40	3080.	2.60	2360.	0.28	254.	0.09	82.
29	174.	129.	61.	3.20	3000.	2.50	2350.	0.24	225.	0.08	75.
30	188.	112.	57.	3.50	3550.	2.60	2640.	0.29	294.	0.08	81.
TOTALS	5660.00		1626.00		87979.44		63939.89		8066.00		1871.00

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA--Continued

		SUSPENDED SEDIMENT		NITROGEN TOTAL (AS N)		NITRITE+NITRATE TOTAL (AS N)		PHOSPHORUS TOTAL (AS P)		ORTHOPHOSPHATE TOTAL (AS P)	
DATE	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)
JUL.1978											
1	246.	205.	136.	4.00	5310.	2.60	3450.	0.42	557.	0.10	133.
2	270.	130.	95.	3.80	5530.	2.50	3640.	0.38	553.	0.12	175.
3	262.	121.	86.	3.40	4800.	2.40	3390.	0.25	353.	0.08	113.
4	238.	123.	79.	3.00	3850.	2.40	3080.	0.17	218.	0.06	77.
5	210.	125.	71.	3.20	3620.	2.40	2720.	0.29	328.	0.04	45.
6	198.	113.	60.	3.20	3420.	2.50	2670.	0.20	214.	0.05	53.
7	184.	93.	46.	3.00	2980.	2.40	2380.	0.19	189.	0.05	50.
8	177.	108.	52.	3.10	2960.	2.40	2290.	0.20	191.	0.05	48.
9	179.	118.	57.	3.00	2900.	2.40	2320.	0.34	328.	0.05	48.
10	181.	111.	54.	2.90	2830.	2.30	2250.	0.24	234.	0.06	59.
11	194.	137.	72.	3.00	3140.	2.20	2300.	0.29	303.	0.06	63.
12	204.	124.	68.	3.10	3410.	2.20	2420.	0.35	385.	0.06	66.
13	197.	117.	62.	2.80	2980.	2.20	2340.	0.31	329.	0.06	64.
14	197.	125.	66.	3.10	3290.	2.20	2340.	0.28	298.	0.06	64.
15	201.	128.	69.	3.00	3250.	2.20	2390.	0.28	304.	0.07	76.
16	217.	141.	83.	2.80	3280.	2.00	2340.	0.28	328.	0.07	82.
17	226.	129.	79.	2.60	3170.	1.90	2320.	0.26	317.	0.06	73.
18	222.	128.	77.	2.60	3110.	2.00	2390.	0.29	347.	0.06	72.
19	223.	132.	79.	2.50	3010.	1.90	2290.	0.27	325.	0.06	72.
20	221.	181.	108.	2.60	3100.	2.00	2380.	0.25	298.	0.05	60.
21	223.	144.	87.	2.80	3370.	2.00	2410.	0.25	301.	0.06	72.
22	219.	156.	92.	2.80	3310.	2.00	2360.	0.26	307.	0.06	71.
23	221.	147.	88.	2.80	3340.	2.00	2380.	0.27	322.	0.07	83.
24	216.	143.	83.	2.70	3150.	2.00	2330.	0.27	315.	0.06	70.
25	214.	151.	87.	2.70	3120.	1.90	2190.	0.37	427.	0.07	81.
26	217.	164.	96.	2.70	3160.	1.90	2220.	0.34	398.	0.07	82.
27	228.	161.	99.	2.60	3200.	1.90	2340.	0.31	381.	0.06	74.
28	231.	191.	119.	2.90	3610.	2.10	2620.	0.36	449.	0.06	75.
29	231.	184.	115.	2.80	3490.	2.00	2490.	0.36	449.	0.06	75.
30	223.	177.	107.	2.80	3370.	2.00	2410.	0.36	433.	0.06	72.
31	227.	132.	81.	2.80	3430.	2.00	2450.	0.40	490.	0.05	61.
TOTALS	6697.00		2553.00		106489.12		77899.56		10671.00		2309.00
AUG.1978											
1	229.	123.	76.	2.70	3340.	2.00	2470.	0.25	309.	0.05	62.
2	222.	143.	86.	2.80	3350.	2.00	2390.	0.36	431.	0.06	72.
3	220.	136.	81.	2.90	3440.	2.10	2490.	0.31	368.	0.05	59.
4	225.	136.	83.	2.30	2790.	1.50	1820.	0.36	437.	0.06	73.
5	225.	135.	82.	2.80	3400.	2.10	2550.	0.26	316.	0.05	61.
6	229.	132.	82.	2.90	3580.	2.00	2470.	0.33	408.	0.06	74.
7	228.	131.	81.	2.70	3320.	2.00	2460.	0.26	320.	0.06	74.
8	223.	125.	75.	2.90	3490.	2.00	2410.	0.28	337.	0.05	60.
9	225.	117.	71.	2.90	3520.	2.10	2550.	0.26	316.	0.06	73.
10	234.	109.	69.	2.80	3530.	2.10	2650.	0.24	303.	0.06	76.
11	243.	110.	72.	1.70	2230.	1.10	1440.	0.22	288.	0.03	39.
12	250.	113.	76.	2.90	3910.	2.00	2700.	0.24	324.	0.04	54.
13	264.	122.	87.	2.80	3990.	2.00	2850.	0.26	370.	0.05	71.
14	263.	131.	93.	2.80	3970.	2.00	2840.	0.29	411.	0.06	85.
15	269.	126.	92.	2.80	4060.	2.00	2900.	0.26	377.	0.06	87.
16	278.	98.	74.	2.90	4350.	2.20	3300.	0.23	345.	0.07	105.
17	241.	95.	62.	2.80	3640.	2.20	2860.	0.17	221.	0.06	78.
18	221.	97.	58.	3.00	3580.	2.40	2860.	0.20	238.	0.06	72.
19	206.	68.	38.	3.10	3440.	2.40	2670.	0.19	211.	0.03	33.
20	209.	89.	50.	3.20	3610.	2.60	2930.	0.19	214.	0.04	45.
21	209.	77.	43.	3.10	3490.	2.50	2820.	0.17	192.	0.04	45.
22	236.	140.	89.	3.20	4070.	2.50	3180.	0.20	255.	0.03	38.
23	227.	84.	51.	3.30	4040.	2.50	3060.	0.24	294.	0.06	73.
24	186.	75.	38.	3.30	3310.	2.70	2710.	0.20	201.	0.04	40.
25	166.	82.	37.	3.60	3220.	3.00	2690.	0.17	152.	0.04	36.
26	158.	66.	28.	3.80	3240.	3.20	2730.	0.16	136.	0.03	26.
27	150.	105.	43.	3.80	3070.	3.20	2590.	0.18	146.	0.03	24.
28	147.	79.	31.	3.70	2930.	3.10	2460.	0.14	111.	0.03	24.
29	158.	60.	26.	3.40	2900.	2.80	2390.	0.13	111.	0.03	26.
30	166.	95.	43.	3.00	2690.	2.40	2150.	0.14	125.	0.03	27.
31	176.	76.	36.	3.20	3040.	2.60	2470.	0.15	142.	0.03	28.
TOTALS	6683.00		1953.00		106539.12		80859.50		8409.00		1740.00

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA--Continued

		SUSPENDED SEDIMENT		NITROGEN TOTAL (AS N)		NITRITE+NITRATE TOTAL (AS N)		PHOSPHORUS TOTAL (AS P)		ORTHOPHOSPHATE TOTAL (AS P)	
DATE	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)
SEP.1978											
1	175.	80.	38.	3.00	2830.	2.40	2270.	0.16	151.	0.04	38.
2	178.	104.	50.	3.00	2880.	2.30	2210.	0.18	173.	0.04	38.
3	181.	136.	66.	3.00	2930.	2.20	2150.	0.21	205.	0.05	49.
4	178.	79.	38.	2.90	2780.	2.30	2210.	0.15	144.	0.04	38.
5	176.	76.	36.	3.00	2850.	2.40	2280.	0.17	161.	0.04	38.
6	176.	89.	42.	2.90	2750.	2.30	2180.	0.17	161.	0.05	47.
7	175.	86.	41.	3.00	2830.	2.40	2270.	0.17	160.	0.05	47.
8	174.	63.	30.	1.30	1220.	0.84	788.	0.14	131.	0.03	28.
9	171.	65.	30.	3.20	2950.	2.60	2400.	0.18	166.	0.04	37.
10	163.	58.	26.	3.20	2810.	2.60	2290.	0.14	123.	0.03	26.
11	160.	64.	28.	3.00	2590.	2.50	2160.	0.13	112.	0.03	26.
12	152.	56.	23.	3.10	2540.	2.60	2130.	0.15	123.	0.03	25.
13	149.	54.	22.	3.40	2730.	2.80	2250.	0.14	113.	0.03	24.
14	143.	54.	21.	3.30	2550.	2.70	2080.	0.20	154.	0.03	23.
15	139.	60.	23.	1.10	825.	0.58	435.	0.14	105.	0.01	7.5
16	143.	44.	17.	1.20	926.	0.74	571.	0.09	69.	0.01	7.7
17	146.	44.	17.	3.00	2360.	2.50	1970.	0.10	79.	0.02	16.
18	140.	46.	17.	2.90	2190.	2.40	1810.	0.09	68.	0.01	7.6
19	133.	45.	16.	3.10	2220.	2.60	1870.	0.10	72.	0.02	14.
20	139.	44.	17.	3.00	2250.	2.40	1800.	0.12	90.	0.03	22.
21	144.	51.	20.	2.90	2250.	2.40	1860.	0.10	78.	0.02	16.
22	144.	42.	16.	2.10	1630.	1.60	1240.	0.09	70.	0.02	16.
23	142.	37.	14.	2.70	2070.	2.20	1690.	0.08	61.	0.03	23.
24	142.	50.	19.	2.70	2070.	2.20	1690.	0.09	69.	0.03	23.
25	139.	49.	18.	2.80	2100.	2.20	1650.	0.11	82.	0.03	22.
26	124.	48.	16.	3.10	2070.	2.50	1670.	0.11	74.	0.04	27.
27	116.	36.	11.	3.10	1940.	2.60	1630.	0.09	56.	0.04	25.
28	118.	35.	11.	3.10	1970.	2.60	1650.	0.10	64.	0.04	25.
29	121.	37.	12.	2.60	1700.	2.20	1440.	0.09	59.	0.02	13.
30	122.	44.	14.	2.10	1380.	1.70	1120.	0.12	79.	0.03	20.
TOTALS	4503.00		749.00		67190.81		53763.90		3252.00		768.80
OCT.1978											
1	123.	33.	11.	2.90	1920.	2.40	1590.	0.09	60.	0.03	20.
2	120.	31.	10.	2.90	1880.	2.40	1550.	0.10	65.	0.04	26.
3	114.	37.	11.	3.00	1840.	2.50	1540.	0.09	55.	0.03	18.
4	112.	37.	11.	3.10	1870.	2.60	1570.	0.10	60.	0.04	24.
5	116.	29.	9.1	2.90	1810.	2.40	1500.	0.08	50.	0.03	19.
6	119.	33.	11.	1.70	1090.	1.30	834.	0.08	51.	0.02	13.
7	125.	34.	11.	2.20	1480.	1.80	1210.	0.08	54.	0.02	13.
8	128.	45.	16.	2.40	1660.	2.00	1380.	0.06	41.	0.03	21.
9	126.	60.	20.	2.50	1700.	2.00	1360.	0.08	54.	0.03	20.
10	121.	44.	14.	2.50	1630.	2.00	1310.	0.10	65.	0.03	20.
11	126.	33.	11.	2.00	1360.	1.60	1090.	0.06	41.	0.02	14.
12	125.	38.	13.	2.20	1480.	1.80	1210.	0.09	61.	0.03	20.
13	114.	38.	12.	1.90	1170.	1.40	861.	0.09	55.	0.03	18.
14	118.	21.	6.7	2.80	1780.	2.30	1460.	0.10	64.	0.04	25.
15	123.	63.	21.	2.70	1790.	2.20	1460.	0.11	73.	0.02	13.
16	122.	78.	26.	2.70	1780.	2.20	1450.	0.10	66.	0.03	20.
17	117.	28.	8.9	2.40	1510.	1.80	1140.	0.07	44.	0.03	19.
18	121.	41.	13.	2.50	1700.	2.20	1440.	0.07	46.	0.03	20.
19	124.	59.	20.	2.40	1610.	1.90	1270.	0.10	67.	0.03	20.
20	111.	22.	6.6	2.20	1320.	1.80	1080.	0.07	42.	0.02	12.
21	106.	22.	6.3	2.40	1370.	2.00	1140.	0.06	34.	0.02	11.
22	110.	23.	6.8	2.50	1480.	2.10	1250.	0.06	36.	0.02	12.
23	106.	14.	4.0	2.70	1540.	2.30	1320.	0.06	34.	0.02	11.
24	99.	16.	4.3	2.80	1500.	2.40	1280.	0.06	32.	0.02	11.
25	96.	13.	3.4	3.00	1550.	2.60	1350.	0.06	31.	0.02	10.
26	78.	15.	3.2	3.30	1390.	2.90	1220.	0.05	21.	0.03	13.
27	64.	17.	2.9	3.80	1310.	3.40	1170.	0.05	17.	0.02	6.9
28	58.	20.	3.1	4.00	1250.	3.60	1130.	0.04	13.	0.03	9.4
29	43.	23.	2.7	3.30	765.	2.80	649.	0.04	9.3	0.03	7.0
30	37.	27.	2.7	2.70	539.	2.20	439.	0.05	10.	0.03	6.0
31	37.	27.	2.7	2.70	539.	2.20	439.	0.05	10.	0.03	6.0
TOTALS	3239.00		304.30		45612.90		37691.91		1361.30		478.30

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA--Continued

		SUSPENDED SEDIMENT		NITROGEN TOTAL (AS N)		NITRITE+NITRATE TOTAL (AS N)		PHOSPHORUS TOTAL (AS P)	
DATE	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (TONS/DAY)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (LBS/DAY)
NOV.1978									
1	46.	11.	1.4	6.90	1710.	6.00	1490.	0.05	12.
2	46.	6.	0.75	6.90	1710.	6.00	1490.	0.05	12.
3	39.	12.	1.3	6.90	1450.	6.00	1260.	0.05	11.
4	37.	8.	0.80	6.90	1380.	6.00	1200.	0.05	10.
5	35.	9.	0.85	6.00	1130.	5.00	944.	0.05	9.4
6	34.	10.	0.92	4.70	862.	4.00	734.	0.05	9.2
7	34.	11.	1.0	3.70	679.	3.10	569.	0.05	9.2
8	33.	13.	1.2	7.60	1350.	6.70	1190.	0.06	11.
9	32.	14.	1.2	7.60	1310.	6.70	1160.	0.06	10.
10	30.	20.	1.6	7.60	1230.	6.70	1080.	0.06	9.7
11	30.	18.	1.5	7.20	1170.	6.40	1040.	0.06	9.7
12	29.	14.	1.1	6.90	1080.	6.20	970.	0.07	11.
13	27.	11.	0.80	6.90	1000.	6.20	903.	0.07	10.
14	27.	9.	0.66	6.90	1000.	6.20	903.	0.07	10.
15	28.	7.	0.53	7.00	1060.	6.40	967.	0.06	9.1
16	29.	6.	0.47	7.20	1130.	6.50	1020.	0.05	7.8
17	29.	6.	0.47	7.30	1140.	6.70	1050.	0.04	6.3
18	27.	6.	0.44	5.90	859.	5.00	728.	0.06	8.7
19	23.	6.	0.37	4.50	558.	3.40	422.	0.07	8.7
20	29.	6.	0.47	5.00	782.	4.00	626.	0.07	11.
21	31.	6.	0.50	5.50	920.	4.50	752.	0.06	10.
22	30.	10.	0.81	6.00	971.	5.00	809.	0.06	9.7
23	29.	10.	0.78	6.50	1020.	5.50	860.	0.05	7.8
24	29.	10.	0.78	7.00	1090.	6.00	939.	0.04	6.3
25	29.	5.	0.39	7.70	1200.	6.60	1030.	0.04	6.3
26	29.	3.	0.23	7.70	1200.	6.60	1030.	0.04	6.3
27	29.	3.	0.23	7.10	1110.	6.10	954.	0.03	4.7
28	30.	3.	0.24	10.00	1620.	6.70	1080.	0.05	8.1
29	30.	3.	0.24	9.30	1500.	6.60	1070.	0.05	8.1
30	36.	3.	0.29	8.60	1670.	6.40	1240.	0.06	12.
TOTALS	946.00		22.32		34890.92		29509.95		275.10
DEC.1978									
1	35.	3.	0.28	7.80	1470.	6.30	1190.	0.06	11.
2	32.	3.	0.26	7.80	1350.	6.30	1090.	0.06	10.
3	34.	3.	0.28	7.80	1430.	6.30	1160.	0.06	11.
4	36.	4.	0.39	13.00	2520.	6.90	1340.	0.07	14.
5	33.	8.	0.71	13.00	2310.	6.90	1230.	0.07	12.
6	31.	3.	0.25	13.00	2170.	6.90	1150.	0.07	12.
7	29.	3.	0.23	7.80	1220.	7.10	1110.	0.08	13.
8	29.	5.	0.39	7.80	1220.	7.10	1110.	0.08	13.
9	29.	8.	0.63	7.80	1220.	7.10	1110.	0.08	13.
10	30.	3.	0.24	7.10	1150.	6.50	1050.	0.05	8.1
11	29.	3.	0.23	7.10	1110.	6.50	1020.	0.05	7.8
12	27.	3.	0.22	8.60	1250.	7.40	1080.	0.02	2.9
13	27.	3.	0.22	8.40	1220.	7.40	1080.	0.02	2.9
14	28.	3.	0.23	8.20	1240.	7.30	1100.	0.01	1.5
15	27.	12.	0.87	8.00	1170.	7.30	1060.	0.0	0.0
16	28.	8.	0.60	8.00	1210.	7.30	1100.	0.0	0.0
17	27.	3.	0.22	8.00	1170.	7.30	1060.	0.0	0.0
18	26.	11.	0.77	8.10	1140.	7.20	1010.	0.05	7.0
19	24.	12.	0.78	8.10	1050.	7.20	932.	0.05	6.5
20	24.	7.	0.45	7.90	1020.	7.20	932.	0.02	2.6
21	25.	8.	0.54	7.90	1070.	7.20	971.	0.02	2.7
22	26.	6.	0.42	7.80	1090.	6.90	968.	0.03	4.2
23	26.	5.	0.35	7.50	1050.	6.70	940.	0.03	4.2
24	26.	14.	0.98	7.90	1110.	6.90	968.	0.04	5.6
25	25.	8.	0.54	7.40	998.	6.80	917.	0.03	4.0
26	25.	8.	0.54	7.60	1020.	7.00	944.	0.05	6.7
27	20.	7.	0.38	8.10	874.	7.30	788.	0.06	6.5
28	19.	7.	0.36	8.60	835.	7.80	757.	0.06	5.8
29	18.	7.	0.34	9.00	874.	8.20	796.	0.05	4.9
30	19.	8.	0.39	9.00	874.	8.20	796.	0.05	4.9
31	17.	8.	0.37	9.00	825.	8.20	752.	0.05	4.6
TOTALS	829.00		13.44		38259.91		31510.94		202.48

SCOOTENAY RESERVOIR BASIN

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA--Continued

DATE	MEAN DISCHARGE (CFS)	SUSPENDED SEDIMENT MEAN CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	NITROGEN TOTAL (AS N) MEAN CONCENTRATION (MG/L)	NITROGEN TOTAL (AS N) DISCHARGE (LBS/DAY)	NITRITE+NITRATE TOTAL (AS N) MEAN CONCENTRATION (MG/L)	NITRITE+NITRATE TOTAL (AS N) DISCHARGE (LBS/DAY)	PHOSPHORUS TOTAL (AS P) MEAN CONCENTRATION (MG/L)	PHOSPHORUS TOTAL (AS P) DISCHARGE (LBS/DAY)
JAN.1979									
1	17.	9.	0.41	8.60	789.	7.60	697.	0.06	5.5
2	17.	9.	0.41	8.60	789.	7.60	697.	0.06	5.5
3	17.	10.	0.46	8.60	789.	7.60	697.	0.06	5.5
4	17.	10.	0.46	8.60	789.	7.60	697.	0.06	5.5
5	17.	11.	0.50	8.60	789.	7.60	697.	0.06	5.5
6	16.	11.	0.48	10.00	863.	9.00	777.	0.06	5.2
7	16.	12.	0.52	10.00	863.	9.00	777.	0.06	5.2
8	17.	12.	0.55	10.00	917.	9.00	825.	0.06	5.5
9	17.	13.	0.60	7.80	715.	6.90	633.	0.06	5.5
10	17.	14.	0.64	7.80	715.	6.90	633.	0.06	5.5
11	17.	2.	0.09	7.80	715.	6.90	633.	0.06	5.5
12	17.	10.	0.46	7.80	715.	6.90	633.	0.06	5.5
13	18.	2.	0.10	7.90	767.	7.00	680.	0.06	5.8
14	18.	4.	0.19	7.90	767.	7.00	680.	0.06	5.8
15	18.	6.	0.29	7.90	767.	7.00	680.	0.06	5.8
16	18.	16.	0.78	5.90	573.	5.00	485.	0.05	4.9
17	18.	11.	0.53	5.90	573.	5.00	485.	0.05	4.9
18	20.	24.	1.3	5.90	636.	5.00	539.	0.05	5.4
19	19.	3.	0.15	7.90	810.	7.00	717.	0.05	5.1
20	19.	3.	0.15	7.90	810.	7.00	717.	0.05	5.1
21	20.	3.	0.16	7.90	852.	7.00	755.	0.05	5.4
22	19.	5.	0.26	8.20	840.	7.20	738.	0.04	4.1
23	20.	3.	0.16	8.20	885.	7.20	777.	0.04	4.3
24	20.	5.	0.27	8.20	885.	7.20	777.	0.04	4.3
25	19.	8.	0.41	8.10	830.	7.20	738.	0.04	4.1
26	19.	45.	2.3	8.10	830.	7.20	738.	0.04	4.1
27	19.	10.	0.51	8.10	830.	7.20	738.	0.04	4.1
28	18.	3.	0.15	8.40	816.	7.80	757.	0.04	3.9
29	17.	3.	0.14	8.40	770.	7.80	715.	0.04	3.7
30	17.	3.	0.14	8.40	770.	7.80	715.	0.04	3.7
31	17.	3.	0.14	8.20	752.	7.40	679.	0.03	2.8
TOTALS	555.00		13.71		24211.00		21506.00		152.70
FEB.1979									
1	17.	5.	0.23	8.20	752.	7.40	679.	0.03	2.8
2	16.	5.	0.22	8.20	708.	7.40	639.	0.03	2.6
3	17.	10.	0.46	8.00	734.	7.20	660.	0.03	2.8
4	18.	10.	0.49	8.00	777.	7.20	699.	0.03	2.9
5	19.	10.	0.51	8.00	820.	7.20	738.	0.03	3.1
6	21.	10.	0.57	11.00	1250.	5.90	668.	0.77	87.
7	31.	15.	1.3	11.00	1840.	5.80	970.	0.86	144.
8	38.	214.	22.	11.00	2250.	5.60	1150.	1.00	205.
9	183.	672.	332.	9.00	8880.	2.70	2670.	1.80	1780.
10	257.	816.	566.	5.70	9290.	2.10	2910.	2.10	2910.
11	82.	705.	156.	6.80	3010.	2.70	1190.	1.50	663.
12	70.	508.	96.	8.00	3020.	4.50	1700.	1.20	453.
13	53.	797.	114.	8.00	2290.	4.50	1290.	1.20	343.
14	30.	247.	20.	8.00	1290.	4.50	728.	1.20	194.
15	25.	63.	4.3	5.60	755.	4.00	539.	0.30	40.
16	25.	33.	2.2	5.60	755.	4.00	539.	0.30	40.
17	24.	31.	2.0	5.60	725.	4.00	518.	0.30	39.
18	25.	25.	1.7	6.30	850.	5.00	674.	0.08	11.
19	24.	35.	2.3	6.30	816.	5.00	647.	0.08	10.
20	24.	35.	2.3	6.30	816.	5.00	647.	0.08	10.
21	24.	24.	1.6	6.50	841.	5.20	673.	0.08	10.
22	24.	20.	1.3	6.80	880.	5.50	712.	0.09	12.
23	23.	38.	1.9	7.00	868.	5.90	732.	0.10	12.
24	24.	17.	1.1	7.40	958.	6.30	816.	0.12	16.
25	27.	26.	1.9	7.70	1120.	6.70	976.	0.14	20.
26	27.	20.	1.5	7.70	1120.	6.70	976.	0.14	20.
27	26.	30.	2.1	7.70	1080.	6.70	940.	0.14	20.
28	25.	33.	2.2	7.40	1070.	6.60	890.	0.16	22.
TOTALS	1199.00		1338.18		49564.95		26969.98		7075.20

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA--Continued

		SUSPENDED SEDIMENT		NITROGEN TOTAL (AS N)		NITRITE+NITRATE TOTAL (AS N)		PHOSPHORUS TOTAL (AS P)	
DATE	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)
MAR.1979									
1	25.	46.	3.1	7.90	1070.	6.60	890.	0.16	22.
2	24.	29.	1.9	7.90	1020.	6.60	854.	0.16	21.
3	25.	23.	1.6	7.90	1070.	6.70	903.	0.07	9.4
4	26.	21.	1.5	7.90	1110.	6.70	940.	0.07	9.8
5	27.	24.	1.7	7.90	1150.	6.70	976.	0.07	10.
6	28.	26.	2.0	6.30	952.	4.80	725.	0.03	4.5
7	27.	27.	2.0	7.60	1110.	5.90	859.	0.04	5.8
8	27.	31.	2.3	9.00	1310.	7.00	1020.	0.04	5.8
9	27.	34.	2.5	9.00	1310.	7.00	1020.	0.04	5.8
10	27.	37.	2.7	9.00	1310.	7.00	1020.	0.04	5.8
11	27.	21.	1.5	3.00	437.	2.10	306.	0.06	8.7
12	26.	24.	1.7	3.00	421.	2.10	295.	0.06	8.4
13	25.	26.	1.8	3.00	405.	2.10	283.	0.06	8.1
14	25.	26.	1.8	7.70	1040.	7.00	944.	0.04	5.4
15	26.	22.	1.5	7.70	1080.	7.00	982.	0.04	5.6
16	25.	24.	1.6	6.30	850.	5.70	769.	0.03	4.0
17	24.	21.	1.4	4.90	634.	4.40	570.	0.02	2.6
18	23.	26.	1.6	4.90	608.	4.40	546.	0.02	2.5
19	22.	33.	2.0	4.90	581.	4.40	522.	0.02	2.4
20	22.	25.	1.5	6.00	712.	5.40	641.	0.02	2.4
21	22.	25.	1.5	7.20	854.	6.30	748.	0.02	2.4
22	21.	31.	1.8	7.20	816.	6.30	714.	0.02	2.3
23	21.	38.	2.2	8.00	906.	7.20	816.	0.09	10.
24	21.	44.	2.5	8.00	906.	7.20	816.	0.09	10.
25	21.	28.	1.6	8.00	906.	7.20	816.	0.09	10.
26	21.	31.	1.8	7.60	861.	6.70	759.	0.08	9.1
27	22.	25.	1.5	7.60	902.	6.70	795.	0.08	9.5
28	20.	19.	1.0	7.60	820.	6.70	723.	0.08	8.6
29	33.	25.	2.2	5.20	926.	4.50	801.	0.05	8.9
30	23.	22.	1.4	5.20	645.	4.50	558.	0.05	6.2
31	38.	32.	3.3	5.20	1070.	4.50	922.	0.05	10.
TOTALS	771.00		58.50		27791.96		23532.99		237.00
APR.1979									
1	42.	24.	2.7	3.50	793.	3.00	680.	0.05	11.
2	44.	23.	2.7	3.50	831.	3.00	712.	0.05	12.
3	46.	34.	4.2	3.00	744.	2.50	620.	0.08	20.
4	50.	42.	5.7	3.00	809.	2.50	674.	0.08	22.
5	52.	27.	3.8	1.80	505.	1.10	309.	0.07	20.
6	49.	35.	4.6	1.80	476.	1.10	291.	0.07	19.
7	49.	31.	4.1	3.10	819.	2.50	661.	0.08	21.
8	46.	35.	4.3	3.10	769.	2.50	620.	0.08	20.
9	51.	63.	8.7	3.70	1020.	2.30	633.	0.03	8.3
10	55.	38.	5.6	3.70	1100.	2.30	682.	0.03	8.9
11	59.	43.	6.8	2.60	827.	2.30	732.	0.10	32.
12	67.	49.	8.9	2.60	940.	2.30	831.	0.10	36.
13	76.	63.	13.	2.40	984.	2.00	820.	0.11	45.
14	79.	43.	9.2	2.40	1020.	2.00	852.	0.11	47.
15	80.	74.	16.	2.00	863.	1.50	647.	0.07	30.
16	81.	47.	10.	2.00	874.	1.50	655.	0.07	31.
17	83.	40.	9.0	1.90	851.	1.40	627.	0.08	36.
18	79.	109.	23.	1.90	810.	1.40	597.	0.08	34.
19	73.	40.	7.9	2.00	788.	1.40	551.	0.05	20.
20	77.	36.	7.5	2.00	831.	1.40	581.	0.05	21.
21	71.	43.	8.2	2.40	919.	1.90	728.	0.06	23.
22	69.	50.	9.3	2.40	893.	1.90	707.	0.06	22.
23	73.	45.	8.9	2.40	945.	1.90	748.	0.07	28.
24	73.	56.	11.	2.40	945.	1.90	748.	0.07	28.
25	69.	62.	12.	2.30	856.	1.80	670.	0.05	19.
26	68.	63.	12.	2.30	844.	1.80	660.	0.05	18.
27	68.	41.	7.5	2.80	1030.	2.10	770.	0.06	22.
28	68.	49.	9.0	2.80	1030.	2.10	770.	0.06	22.
29	72.	122.	24.	2.90	1130.	2.00	777.	0.16	62.
30	86.	92.	21.	2.90	1350.	2.00	928.	0.16	74.
TOTALS	1955.00		280.60		26595.97		20281.00		812.20

SCOOTENAY RESERVOIR BASIN

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA--Continued

		SUSPENDED SEDIMENT		NITROGEN TOTAL (AS N)		NITRITE+NITRATE TOTAL (AS N)		PHOSPHORUS TOTAL (AS P)	
DATE	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)
MAY 1979									
1	94.	64.	21.	2.90	1470.	2.00	1010.	0.02	10.
2	97.	90.	24.	2.90	1520.	2.00	1050.	0.02	10.
3	94.	88.	22.	2.70	1370.	1.90	963.	0.11	56.
4	101.	115.	31.	2.50	1360.	1.90	1040.	0.11	60.
5	112.	103.	31.	2.40	1450.	1.80	1090.	0.15	91.
6	109.	90.	26.	2.40	1410.	1.80	1060.	0.15	88.
7	111.	103.	31.	2.10	1260.	1.50	898.	0.14	84.
8	109.	116.	34.	2.10	1230.	1.50	882.	0.14	82.
9	121.	152.	50.	2.60	1700.	1.90	1240.	0.05	33.
10	121.	175.	57.	2.60	1700.	1.90	1240.	0.05	33.
11	125.	172.	58.	2.60	1750.	1.90	1280.	0.09	61.
12	133.	138.	50.	2.60	1870.	1.90	1360.	0.09	65.
13	135.	130.	47.	2.60	1890.	1.70	1240.	0.15	109.
14	139.	120.	45.	2.60	1950.	1.70	1270.	0.15	112.
15	129.	112.	39.	2.30	1600.	1.80	1250.	0.07	49.
16	120.	103.	33.	3.10	2010.	2.20	1420.	0.16	104.
17	129.	116.	40.	2.70	1880.	1.90	1320.	0.12	83.
18	131.	129.	46.	2.70	1910.	1.90	1340.	0.12	85.
19	136.	108.	40.	3.00	2200.	2.00	1470.	0.14	103.
20	148.	118.	47.	3.00	2390.	2.00	1600.	0.14	112.
21	154.	107.	44.	2.30	1910.	1.60	1330.	0.09	75.
22	148.	87.	35.	2.30	1840.	1.60	1280.	0.09	72.
23	150.	68.	28.	2.90	2350.	2.10	1700.	0.11	89.
24	155.	113.	47.	2.90	2420.	2.10	1760.	0.11	92.
25	157.	111.	47.	2.70	2290.	2.10	1780.	0.14	119.
26	162.	122.	53.	2.70	2360.	2.10	1840.	0.14	122.
27	171.	96.	44.	2.60	2400.	2.00	1840.	0.09	83.
28	186.	85.	43.	2.60	2610.	2.00	2010.	0.09	90.
29	187.	99.	50.	2.60	2620.	1.90	1920.	0.11	111.
30	184.	103.	51.	2.60	2580.	1.90	1890.	0.11	109.
31	183.	91.	45.	2.90	2860.	2.10	2070.	0.15	148.
TOTALS	4231.00		1259.00		60159.89		43442.90		2540.00
JUN.1979									
1	186.	111.	56.	2.90	2910.	2.10	2110.	0.15	150.
2	190.	102.	52.	2.30	2360.	2.10	2150.	0.16	164.
3	190.	92.	47.	2.30	2360.	2.10	2150.	0.16	164.
4	187.	91.	46.	2.80	2820.	2.10	2120.	0.11	111.
5	186.	97.	49.	2.80	2810.	2.10	2110.	0.11	110.
6	202.	85.	46.	2.90	3160.	2.10	2290.	0.12	131.
7	208.	94.	53.	2.10	2360.	1.50	1680.	0.14	157.
8	215.	81.	47.	2.10	2440.	1.50	1740.	0.14	162.
9	226.	79.	48.	3.20	3900.	2.10	2560.	0.12	146.
10	229.	89.	55.	3.20	3950.	2.10	2590.	0.12	148.
11	216.	88.	51.	3.20	3730.	2.10	2450.	0.13	151.
12	209.	89.	50.	3.00	3380.	2.10	2370.	0.15	169.
13	218.	97.	57.	2.80	3290.	2.20	2590.	0.17	200.
14	223.	88.	53.	2.70	3250.	2.20	2650.	0.18	217.
15	221.	94.	56.	2.70	3220.	2.20	2620.	0.18	215.
16	213.	90.	52.	2.80	3220.	1.90	2180.	0.19	218.
17	224.	82.	50.	2.80	3380.	1.90	2300.	0.19	230.
18	226.	84.	51.	3.20	3900.	2.30	2800.	0.17	207.
19	213.	79.	45.	2.90	3330.	2.40	2760.	0.17	195.
20	207.	72.	40.	2.90	3240.	2.40	2680.	0.13	145.
21	206.	80.	44.	2.90	3220.	2.30	2560.	0.18	200.
22	203.	73.	40.	2.90	3180.	2.30	2520.	0.18	197.
23	197.	75.	40.	3.00	3190.	2.40	2550.	0.15	159.
24	205.	75.	42.	3.00	3320.	2.40	2650.	0.15	166.
25	205.	67.	37.	2.80	3100.	2.10	2320.	0.13	144.
26	196.	66.	35.	2.80	[illegible]	2.10	2220.	0.13	137.
27	190.	74.	38.	3.00	3070.	2.30	2360.	0.15	154.
28	173.	81.	38.	3.00	2800.	2.30	2150.	0.15	140.
29	168.	89.	40.	3.30	2990.	2.50	2270.	0.18	163.
30	173.	84.	39.	3.30	3080.	2.50	2330.	0.18	168.
TOTALS	6105.00		1397.00		93919.31		70829.75		5018.00

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA--Continued

		SUSPENDED SEDIMENT		NITROGEN TOTAL (AS N)		NITRITE+NITRATE TOTAL (AS N)		PHOSPHORUS TOTAL (AS P)	
DATE	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN-TRATION (MG/L)	DISCHARGE (LBS/DAY)
JUL.1979									
1	193.	81.	42.	3.30	3440.	2.50	2600.	0.17	177.
2	211.	64.	36.	3.50	3980.	2.70	3070.	0.17	193.
3	195.	73.	38.	2.40	2520.	1.70	1790.	0.13	137.
4	195.	60.	32.	2.40	2520.	1.70	1790.	0.13	137.
5	188.	63.	32.	3.00	3040.	2.30	2330.	0.14	142.
6	179.	68.	33.	3.00	2900.	2.30	2220.	0.14	135.
7	188.	68.	35.	3.30	3350.	2.70	2740.	0.13	132.
8	200.	61.	33.	3.30	3560.	2.70	2910.	0.13	140.
9	210.	63.	36.	3.50	3960.	2.70	3060.	0.12	136.
10	209.	65.	37.	3.50	3950.	2.70	3040.	0.12	135.
11	211.	78.	44.	3.40	3870.	2.70	3070.	0.12	137.
12	198.	66.	35.	2.90	3100.	2.80	2990.	0.12	128.
13	205.	60.	33.	3.20	3540.	2.60	2880.	0.06	66.
14	225.	62.	38.	3.20	3880.	2.60	3160.	0.06	73.
15	213.	65.	37.	3.10	3560.	2.50	2870.	0.13	149.
16	208.	66.	37.	3.10	3480.	2.50	2800.	0.13	146.
17	204.	65.	36.	3.20	3520.	2.50	2750.	0.04	44.
18	212.	67.	38.	3.20	3660.	2.50	2860.	0.04	46.
19	218.	70.	41.	1.20	1410.	0.66	776.	0.15	176.
20	223.	67.	40.	1.20	1440.	0.66	794.	0.15	180.
21	225.	71.	43.	1.50	1820.	1.10	1340.	0.14	170.
22	231.	69.	43.	1.50	1870.	1.10	1370.	0.14	174.
23	238.	66.	42.	2.90	3720.	2.40	3080.	0.11	141.
24	234.	67.	42.	2.90	3660.	2.40	3030.	0.11	139.
25	233.	68.	43.	3.90	4900.	2.50	3140.	0.14	176.
26	229.	67.	41.	3.90	4820.	2.50	3090.	0.14	173.
27	225.	59.	36.	2.50	3030.	2.10	2550.	0.09	109.
28	223.	57.	34.	2.50	3010.	2.10	2530.	0.09	108.
29	226.	55.	34.	2.20	2680.	1.60	1950.	0.08	98.
30	226.	57.	35.	2.20	2680.	1.60	1950.	0.08	98.
31	216.	59.	34.	2.60	3030.	2.10	2450.	0.11	128.
TOTALS	6591.00		1160.00		99899.25		76979.56		4123.00
AUG.1979									
1	205.	59.	33.	2.60	2880.	2.10	2320.	0.11	122.
2	213.	56.	32.	3.30	3790.	2.70	3100.	0.23	264.
3	207.	56.	31.	3.30	3680.	2.70	3010.	0.23	257.
4	211.	51.	29.	3.40	3870.	2.70	3070.	0.21	239.
5	200.	51.	28.	3.40	3670.	2.70	2910.	0.21	227.
6	200.	52.	28.	3.30	3560.	2.70	2910.	0.09	97.
7	201.	58.	31.	3.30	3580.	2.70	2930.	0.09	98.
8	206.	62.	34.	1.20	1330.	0.68	756.	0.07	78.
9	204.	54.	30.	3.30	3630.	2.50	2750.	0.07	77.
10	201.	57.	31.	3.30	3580.	2.50	2710.	0.07	76.
11	198.	57.	30.	3.30	3520.	2.70	2880.	0.10	107.
12	191.	57.	29.	3.30	3400.	2.70	2780.	0.10	103.
13	194.	61.	32.	3.40	3560.	2.70	2830.	0.05	52.
14	220.	58.	34.	3.40	4030.	2.70	3200.	0.05	59.
15	228.	46.	28.	3.00	3690.	2.30	2830.	0.26	320.
16	218.	55.	32.	3.00	3530.	2.30	2700.	0.26	306.
17	197.	53.	28.	2.20	2340.	1.60	1700.	0.07	74.
18	187.	55.	28.	2.20	2220.	1.60	1610.	0.07	71.
19	184.	54.	27.	2.70	2680.	2.20	2180.	0.04	40.
20	184.	57.	28.	2.70	2680.	2.20	2180.	0.04	40.
21	175.	55.	26.	3.80	3590.	2.60	2450.	0.05	47.
22	167.	50.	23.	3.00	2700.	2.60	2340.	0.08	72.
23	163.	53.	23.	3.60	3170.	3.10	2730.	0.10	88.
24	166.	60.	27.	3.60	3220.	3.10	2780.	0.10	90.
25	166.	46.	21.	3.70	3310.	3.10	2780.	0.08	72.
26	158.	43.	18.	4.00	3410.	3.20	2730.	0.08	68.
27	161.	55.	24.	4.50	3910.	3.30	2870.	0.07	61.
28	159.	48.	21.	3.70	3170.	3.20	2740.	0.07	60.
29	156.	47.	20.	3.70	3110.	3.20	2690.	0.07	59.
30	154.	49.	20.	3.90	3240.	3.20	2660.	0.10	83.
31	157.	56.	24.	3.90	3300.	3.20	2710.	0.10	85.
TOTALS	5831.00		850.00		101349.25		80835.56		3492.00

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA--Continued

		SUSPENDED SEDIMENT		NITROGEN TOTAL (AS N)		NITRITE+NITRATE TOTAL (AS N)		PHOSPHORUS TOTAL (AS P)	
DATE	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (TONS/DAY)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (LBS/DAY)	MEAN CONCEN- TRATION (MG/L)	DISCHARGE (LBS/DAY)
SEP.1979									
1	163.	56.	25.	3.80	3340.	3.00	2640.	0.14	123.
2	165.	51.	23.	3.80	3380.	3.00	2670.	0.14	125.
3	171.	60.	28.	3.60	3320.	3.00	2770.	0.07	65.
4	154.	51.	21.	3.60	2990.	3.00	2490.	0.07	58.
5	138.	54.	20.	4.10	3050.	3.20	2380.	0.14	104.
6	137.	57.	21.	4.60	3400.	3.50	2590.	0.20	148.
7	136.	48.	18.	4.00	2930.	3.40	2490.	0.17	125.
8	131.	45.	16.	3.40	2400.	3.40	2400.	0.14	99.
9	130.	37.	13.	3.40	2380.	3.40	2380.	0.14	98.
10	133.	37.	13.	4.20	3010.	3.20	2300.	0.05	36.
11	136.	35.	13.	4.20	3080.	3.20	2350.	0.05	37.
12	139.	36.	14.	4.20	3150.	3.00	2250.	0.0	0.0
13	135.	36.	13.	4.20	3060.	3.00	2180.	0.0	0.0
14	130.	36.	13.	4.10	2880.	3.00	2100.	0.06	42.
15	135.	39.	14.	4.10	2990.	3.00	2180.	0.06	44.
16	133.	39.	14.	3.70	2650.	2.90	2080.	0.26	187.
17	135.	41.	15.	3.70	2690.	2.90	2110.	0.26	189.
18	136.	39.	14.	3.40	2490.	3.00	2200.	0.10	73.
19	130.	37.	13.	3.40	2380.	3.00	2100.	0.10	70.
20	132.	38.	14.	3.60	2560.	2.90	2060.	0.08	57.
21	133.	37.	13.	3.60	2580.	2.90	2080.	0.08	57.
22	132.	35.	12.	3.60	2560.	2.80	1990.	0.09	64.
23	136.	36.	13.	3.50	2570.	2.80	2050.	0.11	81.
24	136.	37.	14.	3.50	2570.	2.80	2050.	0.11	81.
25	131.	41.	15.	3.50	2470.	2.60	1840.	0.09	64.
26	126.	35.	12.	3.50	2380.	2.60	1770.	0.09	61.
27	128.	38.	13.	2.90	2000.	2.30	1590.	0.09	62.
28	126.	47.	16.	2.90	1970.	2.30	1560.	0.09	61.
29	128.	41.	14.	3.50	2420.	2.70	1860.	0.06	41.
30	127.	35.	12.	3.50	2400.	2.70	1850.	0.06	41.
TOTALS	4102.00		469.00		82049.44		65359.89		2293.00
OCT.1979									
1	129.	36.	13.	3.50	2440.	2.80	1950.	0.06	42.
2	116.	31.	9.7	3.50	2190.	2.90	1810.	0.06	38.
3	111.	26.	7.8	3.50	2100.	3.00	1800.	0.06	36.
4	114.	30.	9.2	3.60	2210.	3.00	1840.	0.06	37.
5	111.	34.	10.	3.70	2220.	3.10	1860.	0.06	36.
6	107.	34.	9.8	3.90	2250.	3.10	1790.	0.06	35.
7	106.	34.	9.7	4.00	2290.	3.20	1830.	0.06	34.
8	106.	34.	9.7	4.10	2340.	3.30	1890.	0.06	34.
9	113.	34.	10.	4.10	2500.	3.20	1950.	0.06	37.
10	112.	40.	12.	4.20	2540.	3.10	1870.	0.05	30.
11	109.	50.	15.	4.30	2530.	3.00	1760.	0.05	29.
12	110.	76.	23.	4.40	2610.	2.90	1720.	0.05	30.
13	113.	50.	15.	4.30	2620.	2.90	1770.	0.05	30.
14	115.	40.	12.	4.10	2540.	2.80	1740.	0.06	37.
15	114.	26.	8.0	3.90	2400.	2.70	1660.	0.06	37.
16	105.	25.	7.1	3.90	2210.	2.80	1590.	0.06	34.
17	104.	24.	6.7	3.90	2190.	2.90	1630.	0.07	39.
18	112.	23.	7.0	3.80	2300.	3.00	1810.	0.08	48.
19	123.	22.	7.3	3.70	2450.	3.00	1990.	0.09	60.
20	122.	19.	6.3	3.60	2370.	2.90	1910.	0.08	53.
21	119.	18.	5.8	3.50	2250.	2.80	1800.	0.07	45.
22	120.	16.	5.2	3.40	2200.	2.60	1680.	0.05	32.
23	112.	15.	4.5	3.80	2300.	3.00	1810.	0.05	30.
24	99.	15.	4.0	4.30	2300.	3.50	1870.	0.05	27.
25	73.	15.	3.0	4.60	1810.	3.80	1500.	0.05	20.
26	63.	15.	2.6	4.80	1630.	4.00	1360.	0.05	17.
27	57.	10.	1.5	5.00	1540.	4.40	1350.	0.05	15.
28	52.	10.	1.4	5.60	1570.	4.80	1350.	0.05	14.
29	48.	10.	1.3	6.10	1580.	5.50	1420.	0.05	13.
30	47.	10.	1.3	6.60	1670.	5.80	1470.	0.05	13.
31	47.	10.	1.3	6.80	1720.	6.00	1520.	0.05	13.
TOTALS	3089.00		240.20		67869.81		53299.89		995.00

12473740 EL 68 D WASTEWAY NEAR OTHELLO, WA--Continued

WATER QUALITY DATA MARCH 1978 TO OCTOBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
MAR , 1978										
01...	--	25	--	7.5	.50	8.0	.050	.030	15	1.0
02...	--	25	--	--	--	--	--	--	--	--
03...	--	25	--	--	--	--	--	--	--	--
04...	--	25	--	--	--	--	--	--	--	--
05...	--	25	--	--	--	--	--	--	--	--
06...	--	25	--	--	--	--	--	--	--	--
07...	--	25	--	--	--	--	--	--	--	--
07...	1645	25	8.2	--	--	--	--	--	15	1.0
08...	--	25	--	--	--	--	--	--	--	--
09...	--	25	--	--	--	--	--	--	--	--
10...	--	25	--	--	--	--	--	--	--	--
13...	1000	8.0	--	--	--	--	--	--	--	--
14...	0930	6.2	--	--	--	--	--	--	--	--
15...	0830	5.8	--	--	--	--	--	--	--	--
MAY										
23...	1000	143	13.4	1.7	.38	2.1	.100	.040	97	37
23...	1200	144	15.0	1.8	.42	2.2	.100	.040	58	23
23...	1400	145	--	1.8	.52	2.3	.170	.040	118	46
23...	1600	145	--	1.9	.52	2.4	.170	.040	70	27
23...	1800	147	--	1.8	.52	2.3	.170	.040	32	13
23...	2000	147	--	1.8	.58	2.4	.180	.040	135	54
23...	2200	145	--	1.8	.58	2.4	.170	.040	78	31
23...	2400	143	--	1.7	.50	2.2	.180	.040	108	42
24...	0200	141	--	1.7	.55	2.2	.180	.040	141	54
24...	0400	141	--	1.8	.46	2.3	.170	.040	111	42
24...	0600	142	--	1.7	.43	2.1	.140	.040	114	44
24...	0800	142	13.2	1.8	.52	2.3	.150	.040	79	30
JUN										
26...	1000	199	--	2.0	.56	2.6	.200	.050	72	39
26...	1200	198	--	2.0	.58	2.6	.220	.060	70	37
26...	1400	198	--	2.0	.71	2.7	.220	.060	48	26
26...	1600	198	--	2.1	.66	2.8	.190	.060	78	42
26...	1800	198	--	2.1	.61	2.7	.190	.060	76	41
26...	2000	197	--	2.0	.65	2.6	.220	.060	74	39
26...	2200	195	--	2.1	.76	2.9	.240	.060	65	34
26...	2400	192	--	2.1	.66	2.8	.210	.060	66	34
27...	0200	189	--	2.1	.64	2.7	.290	.060	65	33
27...	0400	186	--	2.0	.96	3.0	.210	.060	69	35
27...	0600	185	--	2.0	.74	2.7	.240	.070	77	38
27...	0800	183	19.2	2.1	.77	2.9	.220	.070	131	65
JUL										
02...	1000	281	--	--	--	--	--	--	134	102

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
JUL , 1978											
02...	1200	282	--	--	--	--	--	--	--	127	97
02...	1400	280	--	--	--	--	--	--	--	140	106
02...	1600	279	--	--	--	--	--	--	--	155	117
02...	1800	279	--	--	--	--	--	--	--	170	128
02...	1835	277	20.8	--	--	--	--	--	--	220	165
02...	2000	276	--	--	--	--	--	--	--	149	111
02...	2200	271	--	--	--	--	--	--	--	140	102
02...	2400	269	--	--	--	--	--	--	--	123	89
03...	0200	262	--	--	--	--	--	--	--	121	86
03...	0400	258	--	--	--	--	--	--	--	112	78
03...	0600	255	--	--	--	--	--	--	--	97	67
03...	0800	255	--	--	--	--	--	--	--	91	63
24...	1000	213	--	2.0	.66	2.7	.280	.060	--	101	58
24...	1200	211	--	2.1	.72	2.8	.270	.060	--	132	75
24...	1400	211	--	2.1	.75	2.8	.310	.070	--	178	101
24...	1600	213	--	2.1	.86	3.0	.320	.070	--	180	104
24...	1715	214	24.3	1.8	.64	2.4	.200	.060	.060	180	104
24...	1800	215	--	2.1	.67	2.8	.220	.060	--	107	62
24...	2000	216	--	2.1	.72	2.8	.270	.070	--	145	85
24...	2200	217	--	2.0	.76	2.8	.280	.070	--	118	69
24...	2400	216	--	2.0	.68	2.7	.260	.070	--	142	83
25...	0200	214	--	1.9	.61	2.5	.240	.060	--	120	69
25...	0400	211	--	1.9	.80	2.7	.260	.070	--	152	87
25...	0600	209	--	1.9	.72	2.6	.280	.060	--	167	94
25...	0800	208	--	2.0	.82	2.8	.290	.060	--	178	100
AUG											
23...	1000	244	15.7	2.4	.84	3.2	.300	.060	--	123	81
23...	1200	241	--	2.4	.78	3.2	.220	.060	--	79	51
23...	1400	237	--	2.6	.74	3.3	.180	.070	--	61	39
23...	1600	229	--	2.6	1.10	3.7	.380	.070	--	133	82
23...	1800	225	--	2.6	.86	3.5	.260	.070	--	97	59
23...	2000	222	--	2.6	.72	3.3	.200	.070	--	71	43
23...	2200	220	--	2.6	.73	3.3	.200	.060	--	74	44
23...	2400	219	--	2.5	.65	3.1	.180	.060	--	75	44
24...	0200	215	--	2.5	.73	3.2	.260	.050	--	85	49
24...	0400	213	--	2.5	.61	3.1	.170	.050	--	74	43
24...	0600	209	--	2.7	.60	3.3	.180	.050	--	73	41
24...	0800	205	--	2.5	.58	3.1	.170	.050	--	62	34
24...	1110	199	17.9	2.6	.59	3.2	.110	.050	.050	69	37
SEP											
19...	1000	131	12.0	2.5	.40	2.9	.070	.020	--	27	9.5

12473740 EL 68 D WASTEWAY NEAR OTHELLO, WA--Continued

WATER QUALITY DATA MARCH 1978 TO OCTOBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
SEP , 1978											
19...	1200	131	--	2.6	.55	3.1	.090	.010	--	25	8.8
19...	1400	132	--	2.5	.56	3.1	.090	.010	--	50	18
19...	1600	131	--	2.6	.57	3.2	.100	.010	--	60	21
19...	1800	131	--	2.7	.57	3.3	.110	.020	--	45	16
19...	2000	131	--	2.6	.53	3.1	.100	.020	.020	35	12
19...	2200	131	--	2.6	.50	3.1	.090	.020	--	36	13
19...	2400	133	--	2.6	.50	3.1	.100	.020	--	39	14
20...	0200	133	--	2.5	.45	2.9	.100	.020	--	48	17
20...	0400	135	--	2.5	.50	3.0	.100	.020	--	39	14
20...	0600	136	--	2.4	.47	2.9	.110	.020	--	56	21
20...	0800	136	--	2.5	.49	3.0	.120	.020	--	84	31
20...	1515	137	15.0	--	--	--	--	--	--	26	9.6
OCT											
11...	0910	126	12.5	1.8	.38	2.2	.060	.030	.020	33	11
15...	1700	122	--	2.1	.50	2.6	.110	.030	--	47	15
15...	1900	123	--	2.6	.50	3.1	.110	.030	--	66	22
15...	2100	123	--	2.2	.51	2.7	.110	.020	--	70	23
15...	2300	124	--	2.2	.48	2.7	.110	.030	--	70	23
16...	0100	123	--	2.2	.50	2.7	.100	.030	--	78	26
16...	0300	123	--	2.2	.54	2.7	.120	.030	--	55	18
16...	0500	122	--	2.2	.50	2.7	.100	.020	--	66	22
16...	0700	122	--	2.2	.54	2.7	.100	.030	--	60	20
16...	0900	122	--	2.2	.48	2.7	.100	.020	--	66	22
16...	1100	122	--	1.9	.48	2.4	.090	.020	--	64	21
16...	1300	123	--	2.2	.57	2.8	.110	.020	--	46	15
16...	1500	124	12.9	2.2	.74	2.9	.120	.020	--	71	24
31...	1445	37	7.7	4.5	.89	5.4	.030	--	<.010	27	2.7
NOV											
28...	1525	30	4.2	6.7	3.40	18	.050	--	.010	--	--
DEC											
12...	1900	27	--	7.3	1.30	8.6	.020	--	--	--	--
12...	2100	27	--	7.4	1.40	8.8	.020	--	--	--	--
12...	2300	27	--	7.3	.88	8.2	.020	--	--	--	--
13...	0100	27	--	7.4	1.10	8.5	.030	--	--	--	--
13...	0300	27	--	7.5	1.10	8.6	.030	--	--	--	--
13...	0500	27	--	7.3	1.10	8.4	.010	--	--	--	--
13...	0700	27	--	7.4	1.10	8.5	.010	--	--	--	--
13...	0900	27	--	7.8	1.70	9.5	.010	--	--	--	--
13...	1100	26	--	7.3	1.30	8.6	.030	--	--	--	--
13...	1300	26	--	7.5	.84	8.3	.030	--	--	--	--
13...	1500	26	--	7.5	1.40	8.9	.030	--	--	--	--
13...	1700	26	--	--	--	--	--	--	--	--	--
DEC , 1978											
15...	1400	27	3.9	--	--	--	--	--	.150	--	--
JAN , 1979											
10...	1340	17	.6	7.1	.48	7.6	.050	.040	<.010	--	--
FEB											
09...	1400	185	4.0	4.8	7.70	13	2.10	1.20	.800	958	479
10...	1220	312	1.2	--	--	--	--	--	--	902	760
10...	1300	312	--	1.5	6.40	7.9	2.50	--	--	941	793
10...	1500	323	--	--	--	--	--	--	--	981	856
10...	1700	340	--	1.6	6.20	7.8	2.50	--	--	939	862
10...	1900	343	--	--	--	--	--	--	--	890	824
10...	2100	341	--	1.4	5.00	6.4	1.90	--	--	831	765
10...	2300	329	--	--	--	--	--	--	--	803	713
11...	0100	305	--	1.4	4.70	6.1	1.80	--	--	656	540
11...	0300	273	--	--	--	--	--	--	--	632	466
11...	0500	239	--	1.7	4.40	6.1	1.70	--	--	607	392
11...	0700	210	--	--	--	--	--	--	--	679	385
11...	0900	198	.8	1.9	4.70	6.6	2.20	--	--	846	452
11...	1100	191	1.0	--	--	--	--	--	--	1000	516
MAR											
06...	1700	202	--	4.8	1.80	6.6	.020	--	--	24	13
06...	1800	202	11.0	7.1	1.00	8.1	.300	.200	<.010	--	--
06...	1900	203	--	7.2	1.80	9.0	.200	--	--	26	14
06...	2100	205	--	4.1	1.40	5.5	.200	--	--	29	16
06...	2300	208	--	4.6	1.40	6.0	.200	--	--	21	12
07...	0100	209	--	2.9	1.50	4.4	.200	--	--	22	12
07...	0300	208	--	3.8	1.40	5.2	.200	--	--	31	17
07...	0500	207	--	1.7	2.70	4.4	.300	--	--	23	13
07...	0700	204	--	7.0	1.00	8.0	.500	--	--	27	15
07...	0900	203	--	3.7	1.50	5.2	.300	--	--	33	18
07...	1100	203	--	3.3	.89	4.2	.400	--	--	21	12
07...	1300	203	--	7.2	1.70	8.9	.400	--	--	27	15
07...	1500	204	--	2.2	1.50	3.7	.300	--	--	26	14
MAY											
16...	1700	124	--	2.2	.86	3.1	.150	--	--	97	32
16...	1900	126	--	2.3	.88	3.2	.180	--	--	97	33
16...	2100	129	--	2.3	.76	3.1	.170	--	--	104	36
16...	2300	130	--	2.3	.96	3.3	.170	--	--	95	33
17...	0100	131	--	2.2	.71	2.9	.170	--	--	88	31
17...	0300	131	--	2.2	.67	2.9	.170	--	--	79	28
17...	0500	131	--	2.2	.97	3.2	.190	--	--	126	45
17...	0700	130	--	2.2	1.00	3.2	.130	--	--	131	46
17...	0900	130	--	2.2	.82	3.0	.070	--	--	132	46
17...	1100	130	--	2.2	1.00	3.2	.190	--	--	93	33

12473740 EL 68 D WASTEWAY NEAR OTHELLO, WA--Continued

WATER QUALITY DATA MARCH 1978 TO OCTOBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
MAY , 1979											
17...	1300	124	--	2.3	.75	3.1	.170	--	--	96	33
17...	1500	127	18.3	2.4	.80	3.2	.180	.080	--	99	34
JUN											
06...	1600	202	17.0	2.3	.84	3.1	.090	.040	.020	--	--
06...	1700	202	--	2.3	.72	3.0	.130	--	--	96	52
06...	1900	203	--	2.2	.63	2.8	.130	--	--	98	54
06...	2100	205	--	2.1	.79	2.9	.120	--	--	92	51
06...	2300	208	--	2.1	.70	2.8	.120	--	--	85	48
07...	0100	209	--	2.0	.87	2.9	.130	--	--	79	45
07...	0300	208	--	2.0	.88	2.9	.140	--	--	80	45
07...	0500	207	--	2.0	.95	3.0	.130	--	--	80	45
07...	0700	204	--	2.0	.82	2.8	.140	--	--	83	46
07...	0900	203	--	2.1	.78	2.9	.100	--	--	84	46
07...	1100	203	--	2.1	.74	2.8	.110	--	--	84	46
07...	1300	203	--	2.1	.83	2.9	.130	--	--	83	45
07...	1500	204	--	2.2	1.00	3.2	.120	--	--	84	46
JUL											
11...	0800	208	--	2.9	.68	3.6	.120	--	--	84	47
11...	1000	208	--	2.9	.79	3.7	.120	--	--	80	45
11...	1200	208	--	3.0	.87	3.9	.110	--	--	72	40
11...	1400	208	--	2.9	.54	3.4	.120	--	--	74	42
11...	1600	209	--	2.8	.57	3.4	.110	--	--	73	41
11...	1800	210	--	2.7	.68	3.4	.130	--	--	85	48
11...	2000	211	--	2.6	.99	3.6	.110	--	--	72	41
11...	2200	211	--	2.6	.73	3.3	.110	--	--	77	44
11...	2400	210	--	2.6	.77	3.4	.140	--	--	75	43
12...	0200	208	--	2.5	.68	3.2	.130	--	--	81	45
12...	0400	204	--	2.6	.56	3.2	.110	--	--	80	44
12...	0600	201	--	2.5	.49	3.0	.110	--	--	83	45
12...	1615	196	20.7	2.8	.69	3.5	.120	.050	.070	--	--
26...	1500	225	23.7	--	--	--	--	--	--	64	39
AUG											
08...	0800	197	--	.37	.51	.88	.070	--	--	73	39
08...	1000	198	--	.77	.62	1.4	.070	--	--	63	34
08...	1200	199	--	.83	.50	1.3	.080	--	--	60	32
08...	1400	204	--	2.1	.47	2.6	.080	--	--	61	34
08...	1600	205	--	1.3	.51	1.8	.070	--	--	52	29
08...	1800	208	--	.56	.52	1.1	.070	--	--	55	31
08...	2000	208	--	.36	.52	.88	.070	--	--	53	30
08...	2200	207	--	.17	.52	.69	.080	--	--	60	34
08...	2400	205	--	.35	.49	.84	.070	--	--	60	33
09...	0200	204	--	.53	.43	.96	.070	--	--	63	35

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)
AUG , 1979							
09...	0400	203	--	.40	--	--	.53
09...	0600	202	--	.47	--	--	.54
09...	1300	204	21.6	--	--	--	--
SEP							
06...	0800	136	--	3.5	--	--	.95
06...	1000	136	--	3.5	--	--	.94
06...	1110	136	18.5	3.5	.120	<.010	1.10
06...	1200	137	--	3.5	--	--	1.10
06...	1400	138	--	3.5	--	--	.98
06...	1600	137	--	3.6	--	--	1.10
06...	1800	137	--	3.6	--	--	.92
06...	2000	138	--	3.6	--	--	1.20
06...	2200	138	--	3.5	--	--	1.20
06...	2400	138	--	3.6	--	--	1.30
07...	0200	138	--	3.5	--	--	1.70
07...	0400	138	--	3.5	--	--	1.20
07...	0600	138	--	3.4	--	--	.71
19...	1331	131	19.0	2.9	.010	<.010	.59
21-22	--	16	17.4	2.8	--	--	.75
OCT							
03...	0831	115	12.7	3.0	.030	.000	.48

12473740 EL 68 D WASTEWAY NEAR OTHELLO, WA--Continued

WATER QUALITY DATA MARCH 1978 TO OCTOBER 1979

DATE	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
AUG , 1979						
09...	--	.93	.080	--	70	38
09...	--	1.0	.070	--	75	41
09...	--	--	--	--	62	34
SEP						
06...	--	4.5	.080	--	62	23
06...	--	4.4	.050	--	49	18
06...	.13	4.6	.110	.040	--	--
06...	--	4.6	.040	--	44	16
06...	--	4.5	.050	--	66	25
06...	--	4.7	.040	--	63	23
06...	--	4.5	.050	--	57	21
06...	--	4.8	.310	--	59	22
06...	--	4.7	.530	--	55	20
06...	--	4.9	.440	--	51	19
07...	--	5.2	.350	--	58	22
07...	--	4.7	.240	--	60	22
07...	--	4.1	.230	--	60	22
19...	.44	3.5	.070	.030	--	--
21-22	--	3.6	.090	--	--	--
OCT						
03...	.44	3.5	.060	.040	--	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM
MAR , 1978								
07...	1645	25	8.2	15	1.0	39	42	48
JUN								
27...	0800	183	19.2	131	65	31	41	53
JUL								
02...	1035	277	20.8	220	165	55	67	69
AUG								
24...	1110	199	17.9	69	37	18	37	43
SEP								
20...	1515	137	15.0	26	9.6	40	78	--
FEB , 1979								
10...	1220	312	1.2	902	760	44	66	81
JUL								
20...	1500	225	23.7	64	39	32	46	59
AUG								
09...	1300	204	21.6	62	34	23	49	60

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM
MAR , 1978							
07...	55	64	79	94	100	--	--
JUN							
27...	60	66	73	82	90	97	100
JUL							
02...	71	75	81	92	99	100	--
AUG							
24...	51	58	68	88	98	100	--
SEP							
20...	--	--	92	97	99	100	--
FEB , 1979							
10...	87	92	96	99	100	--	--
JUL							
20...	64	73	79	88	98	100	--
AUG							
09...	67	76	87	94	99	100	--

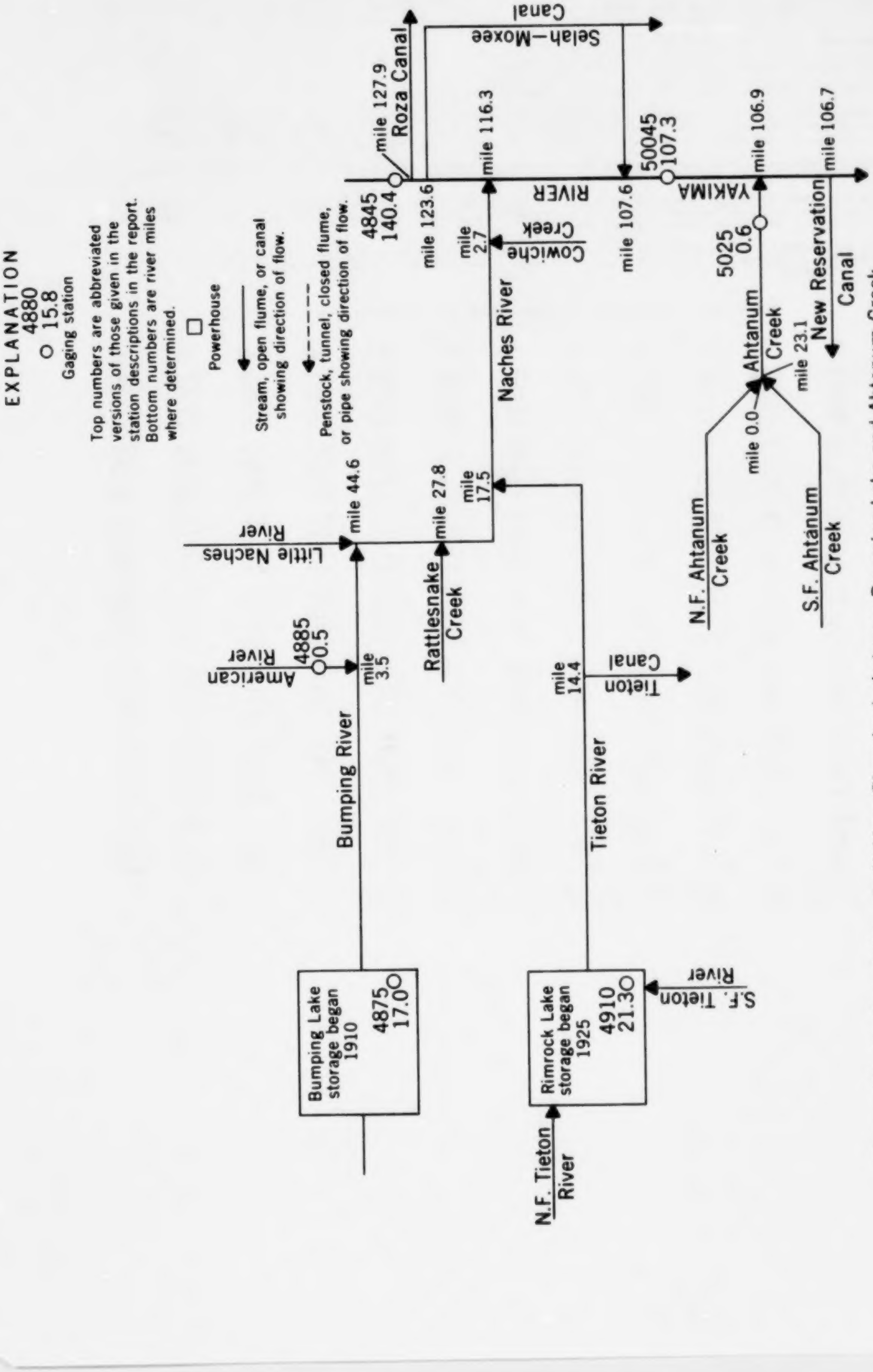
EXPLANATION
4880
15.8
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Bumping Lake storage began 1910
4875
17.0
Bumping River
American River
4885
0.5
mile 3.5
Little Naches River
mile 44.6
Rattlesnake Creek
mile 27.8
mile 17.5
Naches River
Cowiche Creek
mile 2.7
N.F. Tieton River
Rimrock Lake storage began 1925
4910
21.3
S.F. Tieton River
Tieton River
mile 14.4
Tieton Canal
4845
140.4
mile 127.9
Roza Canal
mile 123.6
mile 116.3
Selah—Moxee Canal
mile 107.6
50045
107.3
RIVER
YAKIMA
mile 106.9
mile 106.7
5025
0.6
New Reservation Canal
Ahtanum Creek
mile 23.1
mile 0.0
N.F. Ahtanum Creek
S.F. Ahtanum Creek

Figure 15. Gaging stations in Yakima River basin between Bumping Lake and Ahtanum Creek.

12484500 YAKIMA RIVER AT UMTANUM, WA

LOCATION.--Lat 46°51'46", long 120°28'44", in SW¼NW¼ sec.20, T.16 N., R.19 E., Kittitas County, Hydrologic Unit 17030001, on right bank at Umtanum railway siding, 0.5 mi (0.8 km) upstream from Umtanum Creek, 4.2 mi (6.8 km) upstream from McPherson Canyon, 10 mi (16 km) south of Ellensburg, and at mile 140.4 (225.9 km).

DRAINAGE AREA.--1,594 mi^2 (4,128 km^2).

PERIOD OF RECORD.--August 1906 to current year.

REVISED RECORDS.--WSP 412: 1914. WSP 1286: 1910. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,300.00 ft (396.240 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 28, 1911, nonrecording gage at approximately same site at various datums. Sept. 28, 1911, to Nov. 23, 1936, water-stage recorder at site about 300 ft (91 m) upstream at datum 26.70 ft (8.138 m) higher.

REMARKS.--Records good. Flow partly regulated by Keechelus, Kachess, and Cle Elum Lakes. Diversions above station for irrigation of about 105,000 acres (420 km^2).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,000 ft^3/s (1,160 m^3/s) Nov. 15 or 16, 1906, gage height, 41.1 ft (12.53 m), from floodmarks, present datum; minimum recorded, 138 ft^3/s (3.91 m^3/s) Oct. 3, 1915, gage height, 2.86 ft (0.872 m), datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,120 ft^3/s (230 m^3/s) April 29, gage height, 34.18 ft (10.418 m); minimum daily, 388 ft^3/s (11.0 m^3/s) Dec. 1, may have been less during period of ice effect Jan. 6-15, 18-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	682	864	388	1750	550	4160	1920	6320	2360	2320	3640	3590
2	678	827	401	1610	650	3840	1790	6170	2360	2400	3630	3580
3	680	805	437	1490	800	4040	1760	5310	2320	2700	3670	3190
4	654	723	467	1380	900	4570	1810	4920	2380	3010	3690	3080
5	637	709	749	1300	950	4280	1990	4680	2250	3030	3680	2960
6	632	686	995	1150	1000	3440	2270	4080	2210	2930	3740	2930
7	607	651	1110	1000	900	3120	2270	3550	2290	2860	3750	2900
8	593	621	1160	900	820	2990	2160	2530	2520	3000	3750	2830
9	582	595	1170	800	776	3070	2340	2280	2540	3100	3760	2780
10	544	570	1440	700	765	2890	2770	2210	2470	3300	3760	2750
11	531	550	1580	570	740	2800	2790	2170	2320	3350	3750	2690
12	525	527	1620	550	730	2640	2880	2040	2280	3420	3740	2640
13	520	511	1570	550	700	2660	3150	2150	2370	3410	3820	2750
14	516	491	1550	600	690	2500	3750	2210	2490	3330	3780	2930
15	508	476	2950	1300	650	2280	4260	2210	2420	3230	3790	2670
16	511	470	5180	1600	673	2090	4790	2160	2410	3220	3800	2580
17	506	466	4250	1370	684	2010	5010	3520	2560	3260	3870	2510
18	511	459	5140	1100	697	1960	5090	3590	2480	3240	4000	2490
19	578	448	5700	900	714	1900	5540	3700	2340	3540	3970	2500
20	604	436	5450	800	770	1960	6370	3190	2280	3410	3870	2520
21	587	429	5110	750	821	1960	6880	3070	2340	3350	3800	2510
22	574	431	4720	740	807	2030	6790	2630	2380	3260	3780	2490
23	566	427	4330	720	808	2210	6860	2540	2350	3300	3760	2400
24	609	433	3980	700	797	2180	7060	2420	2290	3480	3710	2320
25	650	438	3590	670	810	2090	6860	2750	2670	3440	3680	2370
26	658	436	3240	550	969	2050	6340	2900	3000	3560	3650	2490
27	687	441	2940	508	1770	2020	6250	2940	2710	3570	3600	2450
28	772	546	2690	470	4120	1950	7220	2850	2620	3530	3590	2400
29	850	478	2410	450	5000	1970	7950	2480	2540	3460	3580	2340
30	876	399	2140	450	---	2060	7190	2380	2440	3520	3580	2310
31	881	---	1930	500	---	2020	---	2360	---	3640	3590	---
TOTAL	19309	16343	80387	27920	31061	81740	134110	98310	72990	100270	115780	80950
MEAN	623	545	2593	901	1071	2637	4470	3171	2433	3235	3735	2698
MAX	881	864	5700	1750	5000	4570	7950	6320	3000	3640	4000	3590
MIN	506	399	388	450	550	1900	1760	2040	2210	2320	3580	2310
AC-FT	38300	32420	159400	55380	61610	162100	266000	195000	144800	198900	229600	160600

CAL YR 1979 TOTAL 561434 MEAN 1538 MAX 5700 MIN 180 AC-FT 1114000
WTR YR 1980 TOTAL 859170 MEAN 2347 MAX 7950 MIN 388 AC-FT 1704000

12488500 AMERICAN RIVER NEAR NILE, WA

LOCATION.--Lat 46°58'40", long 121°10'03", in SE¼NW¼ sec.12, T.17 N., R.13 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on right bank 300 ft (91 m) upstream from Bumping Lake Road bridge, 4.9 mi (7.9 km) downstream from Hell Creek, 16.0 mi (25.7 km) northwest of Nile, and at mile 0.5 (0.8 km).

DRAINAGE AREA.--78.9 mi^2 (204.4 km^2).

PERIOD OF RECORD.--April 1909 to March 1912, July to September 1913, June to September 1914, June to September 1915, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1316. Chemical analyses October 1962 to September 1964, water temperatures October 1968 to May 1971.

REVISED RECORDS.--WSP 982: 1940-42. WSP 1216: Drainage area. WSP 1286: 1911.

GAGE.--Water-stage recorder. Datum of gage is 2,700.0 ft (822.96 m) Washington State Highway Department datum. Prior to Sept. 12, 1915, nonrecording gage at site 300 ft (91 m) downstream at different datum. Oct. 12 to Dec. 7, 1939, nonrecording gage at present site and datum.

REMARKS.--Records good except for January and February, which are poor. Ice affect, Nov. 28 to Dec. 3, Jan. 3 to Feb. 26. No gage-height record Apr. 27 to May 6, Aug. 2-19. No regulation or diversion.

AVERAGE DISCHARGE.--43 years (water years, 1910-11, 1940-80), 243 ft^3/s (6.882 m^3/s) 41.83 in/yr (1,062 mm/yr) 176,100 acre-ft/yr (217 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,340 ft^3/s (94.6 m^3/s) Dec. 4, 1975, gage height, 77.37 ft (23.582 m); minimum, 20 ft^3/s (0.57 m^3/s) Nov. 22, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,260 ft^3/s (35.7 m^3/s) May 6, gage height, 75.26 ft (22.939 m); minimum, 34 ft^3/s (0.96 m^3/s) Oct. 13, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	94	58	149	50	486	125	1100	702	312	79	56
2	39	87	47	142	70	413	122	1050	620	299	77	58
3	39	85	58	125	100	372	122	1080	521	279	76	56
4	38	82	185	115	120	340	122	1100	466	249	75	55
5	38	82	241	105	130	312	133	1150	429	221	73	52
6	37	82	176	90	120	282	139	1220	404	206	72	51
7	37	78	155	85	100	255	133	1050	395	191	71	49
8	37	75	147	80	95	233	132	935	408	184	70	48
9	36	71	153	75	93	218	150	827	555	192	69	47
10	36	68	184	75	86	206	158	730	625	184	67	46
11	36	66	168	80	80	199	158	675	686	167	66	45
12	35	63	160	110	75	188	172	706	674	162	65	44
13	34	61	150	145	70	182	209	762	570	150	63	48
14	34	59	190	130	65	173	274	746	601	143	62	57
15	37	57	230	110	60	167	306	683	636	138	61	53
16	37	58	251	100	55	160	327	620	732	129	60	49
17	37	65	316	95	60	157	365	597	756	125	60	47
18	39	67	717	90	70	152	301	622	690	120	59	46
19	44	66	725	90	75	148	511	633	614	116	58	46
20	43	63	663	100	80	146	700	735	638	113	57	53
21	42	62	519	90	84	143	699	885	609	107	56	52
22	43	63	418	85	86	143	660	878	539	103	55	51
23	56	63	351	95	87	142	718	734	453	101	54	50
24	66	63	303	85	89	140	773	626	398	98	52	47
25	111	61	256	70	90	136	740	545	470	95	52	46
26	123	60	223	60	125	136	765	510	433	92	51	45
27	174	58	202	55	435	132	950	470	375	89	53	44
28	161	52	186	50	719	130	1000	441	346	87	55	43
29	132	50	173	45	607	131	10[illegible]	458	353	85	53	42
30	116	52	163	45	---	128	1150	476	336	83	53	41
31	105	---	156	45	---	128	---	608	---	81	60	---
TOTAL	1881	2013	7856	2816	3976	6278	13234	23501	16034	4701	1934	1467
MEAN	60.7	67.1	253	90.8	137	203	441	761	534	152	62.4	48.9
MAX	174	94	725	149	719	486	1150	1220	756	312	79	58
MIN	34	50	47	45	50	128	122	441	336	81	51	41
CFSM	.77	.85	3.21	1.15	1.74	2.57	5.59	9.65	6.77	1.93	.79	.62
IN.	.89	.95	3.70	1.33	1.87	2.96	6.24	11.12	7.56	2.22	.91	.69
AC-FT	3730	3990	15580	5590	7890	12450	26250	46770	31800	9320	3840	2910

CAL YR 1979 TOTAL 61284 MEAN 168 MAX 827 MIN 26 CFSM 2.13 IN 28.86 AC-FT 121600
WTR YR 1980 TOTAL 85771 MEAN 234 MAX 1220 MIN 34 CFSM 2.97 IN 40.44 AC-FT 170100

RESERVOIRS IN YAKIMA RIVER BASIN, WA

12474000 **KEECHELUS LAKE.**--Lat 47°19'21", long 121°20'18", in SE¼NE¼ sec.12, T.21 N., R.11 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, at headgate tower of outlet at dam on Yakima River 3.0 mi (4.8 km) northwest of Martin, 10 mi (16 km) northwest of Easton, and at mile 214.5 (345.1 km). **DRAINAGE AREA**, 54.7 mi^2 (141.7 km^2). **PERIOD OF RECORD**, January 1906 to current year. **GAGE**, water-stage recorder and low water staff gages. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Mar. 24, 1967, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1917; storage began behind crib dam Jan. 12, 1906, behind present dam Aug. 19, 1914. Initial filling of present reservoir June 15, 1920. Usable capacity, 157,800 acre-ft (195 hm^3) between elevation, 2,425.00 ft (739.140 m), invert of gate sill, and 2,517.00 ft (767.182 m), spillway crest. Spillway raised 2 ft (0.6 m) Sept. 12, 1952. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 160,940 acre-ft (198 hm^3) June 5, 1969, elevation, 2,518.23 ft (767.557 m); minimum observed, 448 acre-ft (0.552 hm^3) Sept. 6, 12, 13, 1906 (original crib dam); minimum elevation observed, 2,428.30 ft (740.146 m) Sept. 20, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 153,550 acre-ft (189 hm^3) May 22-25, elevation, 2,515.34 ft (766.676 m); minimum, 7,460 acre-ft (9.20 hm^3) Oct. 15-17, elevation, 2,430.95 ft (740.954 m).

12475500 **KACHESS LAKE.**--Lat 47°15'53", long 121°12'16", in SW¼SW¼ sec.34, T.21 N., R.13 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, on outlet gate tower at dam on Kachess River, 2.4 mi (3.9 km) northwest of Easton, and at mile 0.9 (1.4 km). **DRAINAGE AREA**, 63.6 mi^2 (164.7 km^2). **PERIOD OF RECORD**, September 1905 to current year. **GAGE**, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Oct. 28, 1966, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1912. Original crib dam, capacity of 21,000 acre-ft (25.9 hm^3), used Sept. 28, 1905, to June 30, 1911. Storage behind present dam began June 30, 1911. Usable capacity, 239,000 acre-ft (295 hm^3) between elevation, 2,192.75 ft (668.350 m), invert of gate sill, and 2,262.00 ft (689.458 m), top of spillway gate. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 244,800 acre-ft (302 hm^3) May 9, 1957, elevation, 2,263.29 ft (689.851 m); minimum observed, 525 acre-ft (0.647 hm^3) Sept. 14, 15, 1910 (original crib dam); minimum elevation observed, 2,197.73 ft (669.868 m) Sept. 25, 27, 1915.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 178,300 acre-ft (220 hm^3) June 26, 27, elevation, 2,248.08 ft (685.215 m); minimum, 21,360 acre-ft (26.3 hm^3) Nov. 2, elevation, 2,200.48 ft (670.706 m).

12478500 **CLE ELUM LAKE.**--Lat 47°14'44", long 121°04'24", in NE¼NE¼ sec.10, T.20 N., R.14 E., Kittitas County, Hydrologic Unit 17030001, at dam on Cle Elum River at outlet of Cle Elum Lake, 4.0 mi (6.4 km) northwest of Roslyn, and at mile 8.3 (13.4 km). **DRAINAGE AREA**, 203 mi^2 (526 km^2). **PERIOD OF RECORD**, May 1906 to current year. **GAGE**, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Mar. 6, 1968, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1933; storage began behind present dam Feb. 26, 1932. Usable capacity, 436,900 acre-ft (539 hm^3) between elevation, 2,110.00 ft (643.128 m), invert of gate sill, and 2,240.00 ft (682.752 m), top of spillway gate. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 448,520 acre-ft (551 hm^3) May 8, 9, 1957, elevation, 2,241.98 ft (683.356 m); minimum observed, 2,380 acre-ft (2.93 hm^3) Aug. 31, 1906; minimum elevation observed, 2,114.35 ft (644.454 m) Oct. 14, 1932. Storage was uncontrolled Oct. 3, 1931, to Feb. 26, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 438,390 acre-ft (541 hm^3) May 24, 25, elevation, 2,240.30 ft (682.843 m); minimum, 54,980 acre-ft (67.8 hm^3) Sept. 30, elevation, 2,136.28 ft (651.138 m).

12487500 **BUMPING LAKE.**--Lat 46°52'25", long 121°17'57", in SW¼ sec.14 (unsurveyed), T.16 N., R.12 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, at outlet of dam on Bumping River, 2.2 mi (3.5 km) southwest of Goose Prairie, 10 mi (16 km) southwest of town of American River, 19 mi (31 km) west of Nile, and at mile 17.0 (27.4 km). **DRAINAGE AREA**, 69.3 mi^2 (179.5 km^2). **PERIOD OF RECORD**, June to July 1906, April 1909 to current year. **GAGE**, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Nov. 23, 1966, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-fill dam completed in 1910; storage began Nov. 3, 1910. Usable capacity, 33,700 acre-ft (41.6 hm^3) between elevation 3,389.00 ft (1,032.967 m), invert of gate sill and 3,426.00 ft (1,044.245 m), spillway crest. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 39,840 acre-ft (49.1 hm^3) June 21, 22, 1925, elevation, 3,430.55 ft (1,045.632 m); minimum observed, 1,130 acre-ft (1.39 hm^3) Feb. 5-9, 1949, elevation, 3,390.80 ft (1,033.516 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 35,550 acre-ft (43.8 hm^3) May 23, elevation, 3,427.40 ft (1,044.672 m); minimum, 3,220 acre-ft (3.97 hm^3) Nov. 29, 30, elevation, 3,394.05 ft (1,034.506 m).

12491000 **RIMROCK LAKE.**--Lat 46°39'23", long 121°07'43", in NE¼SW¼ sec.31, T.14 N., R.14 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on upstream spillway pier at Tieton Dam on Tieton River at Rimrock, 0.6 mi (1.0 km) upstream from Wildcat Creek, 7.1 mi (11.4 km) upstream from headworks on Tieton Canal, 21 mi (34 km) west of Naches and at mile 21.3 (34.3 km). **DRAINAGE AREA**, 187 mi^2 (484 km^2). **PERIOD OF RECORD**, April 1925 to current year. Prior to October 1959, published as Tieton Reservoir. **GAGE**, water-stage recorder and low water staff gages. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Mar. 14, 1967, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earth-fill dam completed in 1925; storage began Apr. 27, 1925. Usable capacity, 198,000 acre-ft (244 hm^3) between elevation 2,766.00 ft (843.077 m), invert of tunnel entrance, and 2,926.00 ft (891.845 m), crest of spillway gages. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 201,630 acre-ft (249 hm^3) June 18, 1974, elevation, 2,927.43 ft (892.281 m); minimum observed, 30 acre-ft (0.037 hm^3) Oct. 19, 20, 1979, elevation, 2,766.25 ft (843.153 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 199,260 acre-ft (246 hm^3) May 29, elevation, 2,926.50 ft (891.997 m); minimum, 30 acre-ft (0.037 hm^3) Oct. 19, 20, elevation, 2766.25 ft (843.153 m).

RESERVOIRS IN YAKIMA RIVER BASIN, WA--Continued

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
	12474000 KEECHELUS LAKE			12475500 KACHESS LAKE		
Sept. 30	2,431.19	7,760	---	2,203.18	28,890	---
Oct. 31	2,433.17	10,280	+2,520	2,200.60	21,700	-7,190
Nov. 30	2,437.02	15,200	+4,920	2,201.74	24,870	+3,170
Dec. 31	2,469.05	59,270	+44,070	2,214.34	60,320	+35,450
CAL YR 1979	---	---	-1,550	---	---	-112,500
Jan. 31	2,474.13	67,350	+8,080	2,217.42	69,120	+8,800
Feb. 29	2,481.02	79,140	+11,790	2,220.37	77,580	+8,460
Mar. 31	2,489.27	94,640	+15,500	2,225.47	92,610	+15,030
Apr. 30	2,506.81	132,650	+38,010	2,235.21	127,550	+34,940
May 31	2,512.70	146,920	+14,270	2,244.45	163,370	+35,820
June 30	2,503.54	125,060	-21,860	2,247.97	177,840	+14,470
July 31	2,481.03	79,160	-45,900	2,241.64	152,160	-25,680
Aug. 31	2,459.64	45,480	-33,680	2,233.89	122,660	-29,500
Sept. 30	2,445.38	26,110	-19,370	2,227.07	98,180	-24,480
WTR YR 1980	---	---	+18,350	---	---	+69,290
	12478500 CLE ELUM LAKE			12487500 BUMPING LAKE		
Sept. 30	2,223.22	359,460	---	3,394.39	3,450	---
Oct. 31	2,223.55	360,930	+1,470	3,395.28	4,040	+590
Nov. 30	2,223.56	360,970	+40	3,394.05	3,220	-820
Dec. 31	2,225.04	367,550	+6,580	3,404.60	10,850	+7,630
CAL YR 1979	---	---	+312,540	---	---	+6,960
Jan. 31	2,223.44	360,440	-7,110	3,402.53	9,210	-1,640
Feb. 29	2,224.27	364,120	+3,680	3,410.87	16,440	+7,230
Mar. 31	2,224.21	363,850	-270	3,421.01	27,470	+11,030
Apr. 30	2,227.32	377,770	+13,920	3,426.31	34,120	+6,650
May 31	2,239.98	436,850	+59,080	3,426.40	34,230	+110
June 30	2,238.95	431,910	-4,940	3,422.63	29,440	-4,790
July 31	2,214.96	323,650	-108,260	3,416.41	22,190	-7,250
Aug. 31	2.169.84	152,080	-171,570	3,411.55	17,100	-5,090
Sept. 30	2,137.29	57,410	-94,670	3,401.60	8,500	-8,600
WTR YR 1980	---	---	-302,050	---	---	+5,050
	12491000 RIMROCK LAKE					
Sept. 30	2,767.52	187	---			
Oct. 31	2,780.38	2,500	+2,310			
Nov. 30	2,802.99	11,350	+8,850			
Dec. 31	2,836.80	38,870	+27,520			
CAL YR 1979	---	---	-101,280			
Jan. 31	2,850.18	54,860	+15,990			
Feb. 29	2,860.12	68,710	+13,850			
Mar. 31	2,874.83	91,810	+23,100			
Apr. 30	2,903.32	145,820	+54,010			
May 31	2,926.34	198,860	+53,040			
June 30	2,924.53	194,310	-4,550			
July 31	2,902.86	144,850	-49,460			
Aug. 31	2,872.42	87,810	-57,040			
Sept. 30	2,847.51	51,410	-36,400			
WTR YR 1980	---	---	+51,220			

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 46°32'04", long 120°27'58", in NW¼NE¼ sec.17, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left bank 2,200 ft (670 m) upstream from Ahtanum Creek, 0.8 mi (1.3 km) upstream from Wapato Dam, 1.4 mi (2.3 km) southeast of Union Gap, and at about mile 107.3 (113.8 km).

DRAINAGE AREA.--3,479 mi^2 (9,011 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 4, 1967, at site 1,200 ft (370 m) downstream at same datum.

REMARKS.--Water-discharge records good. Diversions above station for irrigation of about 212,000 acres (860 km^2). Flow partly regulated by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. Records at this site plus those for Ahtanum Creek at Union Gap (station 12502500) are equivalent to discontinued station 12503000, Yakima River at Union Gap.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,300 ft^3/s (1,000 m^3/s) Dec. 3, 1977, elevation, 949.55 ft (289.423 m); minimum daily, 300 ft^3/s (8.50 m^3/s) Jan. 1, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,100 ft^3/s (428 m^3/s) Apr. 29, elevation, 943.94 ft (287.713 m); minimum discharge, 740 ft^3/s (21.0 m^3/s) Oct. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	879	872	787	2680	1000	7120	2500	10900	4470	3190	3430	3290
2	972	859	786	2480	1100	6340	2320	10500	4590	3070	3380	3380
3	1070	921	839	2320	1200	6470	2190	10000	4260	3260	3430	3090
4	1040	892	926	2160	1400	6790	2180	9050	4040	3640	3440	2880
5	1020	1020	1440	2050	1500	6910	2470	9040	3640	3530	3290	2770
6	971	1150	1670	1800	1550	5570	3040	9110	3410	3300	3310	2770
7	915	1100	1760	1500	1540	4940	3070	8200	3280	3120	3370	2760
8	899	1080	1790	1300	1480	4520	2820	6470	3680	3110	3330	2690
9	891	1030	1780	1180	1430	4720	2910	5470	3920	3790	3380	2640
10	872	997	1980	1100	1390	4530	3600	4870	3930	3620	3330	2730
11	858	967	2250	1150	1360	4340	3720	4630	3770	3580	3320	2710
12	871	934	2260	1200	1320	4120	3790	4300	3820	3570	3280	2650
13	881	909	2220	1300	1300	4070	4280	4200	3920	3550	3350	2820
14	874	891	2150	1400	1210	3850	5280	4270	4250	3420	3290	3240
15	903	877	2670	1850	1070	3570	6220	4260	4220	3310	3270	2850
16	905	879	5870	2130	1070	3210	6560	3850	4290	3540	3300	2670
17	894	881	5280	2220	1130	3040	6970	4780	5270	3530	3380	2610
18	945	864	6300	1870	1210	2960	7220	5260	5040	3320	3530	2550
19	977	856	7800	1400	1230	2870	7930	5820	4720	3630	3340	2610
20	798	836	7600	1200	1340	2950	9990	5400	4440	3560	3210	2570
21	781	838	7110	1200	1450	3100	11400	5540	4400	3400	3150	2570
22	763	854	6520	1200	1370	3290	11300	5160	4280	3250	3310	2530
23	754	844	5930	1150	1320	3520	11200	4620	4090	3410	3330	2450
24	804	848	5450	1150	1310	3360	11800	4150	3810	3460	3250	2300
25	857	844	4930	1200	1350	3010	11600	3960	4220	3280	3250	2280
26	842	844	4500	1100	1500	2840	11000	4140	4950	3410	3240	2350
27	837	815	4130	900	3620	2760	10700	4160	4410	3450	3200	2390
28	912	768	3800	850	7030	2630	12500	4070	4140	3400	3200	2330
29	962	761	3510	800	8770	2610	14700	3790	3970	3280	3190	2270
30	931	793	3190	820	---	2700	13000	4030	3750	3360	3230	2300
31	883	---	2920	900	---	2630	---	4110	---	3410	3310	---
TOTAL	27761	27024	110148	45560	53550	125340	208260	178110	124980	105750	102620	80050
MEAN	896	901	3553	1470	1847	4043	6942	5745	4166	3411	3310	2668
MAX	1070	1150	7800	2680	8770	7120	14700	10900	5270	3790	3530	3380
MIN	754	761	786	800	1000	2610	2180	3790	3280	3070	3150	2270
AC-FT	55060	53600	218500	90370	106200	248600	413100	353300	247900	209800	203500	158800

CAL YR 1979 TOTAL 788335 MEAN 2160 MAX 7800 MIN 300 AC-FT 1564000
WTR YR 1980 TOTAL 1189153 MEAN 3249 MAX 14700 MIN 754 AC-FT 2359000

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969, 1971, March 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	ACIDITY (MG/L AS CACO3)
OCT , 1979											
10...	1415	879	196	8.3	14.7	1.4	12.3	540	130	74	--
NOV											
08...	0930	1070	167	7.7	6.9	3.6	11.9	K230	53	67	--
DEC											
05...	1110	1370	152	7.7	2.0	14	12.4	140	190	59	--
JAN , 1980											
23...	1230	1100	147	7.3	.0	3.3	14.1	20	21	53	--
FEB											
07...	0930	1500	--	--	.1	1.6	14.0	300	140	50	--
MAR											
12...	1500	4060	139	7.8	5.5	4.5	12.3	230	290	58	--
APR											
24...	1300	12000	90	7.8	11.0	22	10.8	120	16	31	--
MAY											
15...	1045	4330	93	7.8	10.1	5.6	11.1	140	340	35	--
19...	1515	5900	113	6.8	11.7	100	10.2	--	--	41	.0
20...	0930	5420	95	6.8	10.8	35	10.2	--	--	37	.0
22...	1215	5120	89	6.8	11.5	14	11.1	--	--	31	10
23...	0830	4710	97	7.2	8.8	13	10.8	--	--	33	.0
27...	1600	4130	110	8.0	11.0	7.5	11.2	2800	930	43	10
JUN											
04...	0945	4180	106	8.3	10.4	2.0	10.7	100	44	39	10
13...	1020	3850	103	7.6	11.6	3.6	--	500	57	37	--
20...	1310	4460	100	--	15.8	11	10.0	7100	1100	37	--
26...	1100	5060	112	7.7	12.6	16	10.3	68000	--	40	--
JUL											
22...	1445	3220	100	--	19.9	5.9	9.4	22000	1000	38	--
AUG											
21...	1400	3120	122	8.4	18.6	7.0	10.4	98	38	41	.0
SEP											
16...	1045	2630	132	--	16.4	2.6	9.8	220	33	51	.0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT , 1979											
10...	18	7.1	13	26	.6	2.4	84	.6	14	5.7	.2
NOV											
08...	16	6.7	11	25	.6	2.0	71	2.2	8.8	4.7	.1
DEC											
05...	15	5.3	9.8	25	.5	1.6	66	2.0	3.4	4.7	.1
JAN , 1980											
23...	13	5.1	8.4	24	.5	1.3	61	4.8	4.6	5.1	.1
FEB											
07...	12	5.0	7.6	24	.4	1.2	58	--	6.6	4.7	.1
MAR											
12...	14	5.7	6.9	19	.4	1.5	58	1.4	5.2	4.6	.1
APR											
24...	8.1	2.8	3.4	18	.2	.8	32	.8	1.5	1.6	.1
MAY											
15...	9.0	3.1	4.4	20	.3	.9	34	.8	10	2.1	.1
19...	11	3.4	4.9	19	.3	1.1	33	8.3	7.2	3.1	.1
20...	9.9	3.2	4.5	20	.3	.9	37	9.3	5.4	2.4	.1
22...	8.1	2.8	4.0	20	.3	.9	31	7.8	--	2.8	.1
23...	8.5	2.9	4.1	20	.3	.8	34	3.4	5.0	3.3	.1
27...	11	3.8	5.2	20	.3	1.1	41	.6	3.1	3.0	.2
JUN											
04...	10	3.4	4.8	20	.3	1.0	40	.3	2.5	2.1	--
13...	9.5	3.3	4.8	21	.3	1.0	41	1.6	5.9	4.8	.1
20...	9.5	3.3	4.7	20	.3	1.0	35	--	6.6	2.7	.3
26...	9.9	3.8	4.7	19	.3	1.1	42	1.3	19	1.5	.0
JUL											
22...	9.6	3.5	4.9	21	.3	1.1	46	--	3.5	2.9	.1
AUG											
21...	10	4.1	5.3	21	.3	1.1	34	.2	11	3.4	.1
SEP											
16...	12	5.1	6.6	21	.4	1.7	49	--	6.3	4.0	.1

K Results based on colony count outside the acceptable range (non-ideal colony count).

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)
OCT . 1979											
10...	20	116	131	.15	275	2	.40	.29	.200	.000	.24
NOV											
08...	20	92	112	.12	266	--	.37	.36	.070	.070	.08
DEC											
05...	18	106	97	.14	392	--	.38	.36	.260	.240	.31
JAN . 1980											
23...	18	100	92	.13	297	--	.34	.36	.170	.140	.21
FEB											
07...	17	95	89	.12	385	--	.32	.33	.080	.140	.10
MAR											
12...	20	100	92	.13	1096	--	.83	.75	.080	.100	.10
APR											
24...	16	52	53	.07	1685	--	.09	.12	.120	.130	.15
MAY											
15...	17	64	67	.08	748	--	.15	--	.060	.120	.07
19...	15	67	65	.09	1067	--	.18	.18	.070	.070	.08
20...	15	64	63	.08	937	--	.23	.03	.120	.060	.15
22...	14	62	52	.08	857	--	.12	.10	.000	.120	.00
23...	14	68	59	.09	865	--	.08	.09	.020	.150	.02
27...	16	72	68	.09	803	--	.21	.19	.090	.120	.11
JUN											
04...	15	69	63	.09	779	--	.14	.13	.010	.000	.01
13...	14	70	68	.09	728	--	.14	.14	.000	.040	.00
20...	15	68	66	.09	819	--	.13	.19	.280	.130	.34
26...	15	64	80	.08	874	--	.18	--	.050	.080	.06
JUL											
22...	14	71	67	.09	617	--	.17	.15	.070	.040	.08
AUG											
21...	14	69	69	.09	581	--	.12	.11	.030	.040	.04
SEP											
16...	17	83	82	.11	589	--	.18	.16	.040	.030	.05

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS TOTAL (MG/L AS PO4)
OCT . 1979											
10...	.00	.50	.75	.70	.00	.75	1.1	4.8	.150	--	.46
NOV											
08...	.09	.43	.34	.50	.09	.41	.87	3.8	.090	--	.28
DEC											
05...	.30	1.0	.44	1.30	.62	.68	1.6	7.4	.120	--	.37
JAN . 1980											
23...	.18	.38	.25	.55	.16	.39	.89	3.9	.110	--	.34
FEB											
07...	.18	.40	.29	.48	.05	.43	.80	3.5	.090	--	.28
MAR											
12...	.12	.71	.33	.79	.36	.43	1.6	7.1	.110	--	.34
APR											
24...	.16	.57	.30	.69	.26	.43	.78	3.4	.130	--	.40
MAY											
15...	.15	.32	.29	.38	.00	.41	.53	2.3	.070	--	.21
19...	.09	.46	.31	.53	.15	.38	.71	3.1	.160	--	.49
20...	.07	1.9	1.5	2.10	.50	1.6	2.3	10	.130	--	.40
22...	.15	.46	.36	.46	.00	.48	.58	2.5	.090	--	.28
23...	.19	.60	.24	.62	.23	.39	.70	3.0	.070	--	.21
27...	.15	.33	.26	.42	.04	.38	.63	2.7	.080	--	.25
JUN											
04...	.00	.40	--	.41	--	--	.55	2.4	.040	--	.12
13...	.05	.61	.14	.61	.43	.18	.75	3.3	.050	--	.15
20...	.16	.13	.32	.41	.00	.45	.54	2.3	.050	--	.15
26...	.10	.52	.34	.57	.15	.42	.75	3.3	.090	--	.28
JUL											
22...	.05	.65	.35	.72	.33	.39	.89	3.9	.110	1.10	.34
AUG											
21...	.05	.55	.37	.58	.17	.41	.70	3.0	.080	.09	.25
SEP											
16...	.03	.45	.38	.49	.08	.41	.67	2.9	.090	.18	.28

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1979										
10...	.120	--	--	--	--	2.6	.4	9	21	--
NOV										
08...	.000	--	--	--	3.8	--	--	13	37	--
DEC										
05...	.080	--	--	--	--	--	--	40	148	93
JAN , 1980										
23...	.080	--	--	--	--	6.8	.4	16	47	--
FEB										
07...	.080	--	--	--	2.8	--	--	17	68	--
MAR										
12...	.060	--	--	--	9.5	--	--	39	428	--
APR										
24...	.030	--	--	--	--	3.5	1.2	145	4698	64
MAY										
15...	.050	--	--	--	2.5	--	--	21	246	--
19...	.040	--	--	--	--	--	--	--	--	--
20...	.050	--	--	--	--	--	--	--	--	--
22...	.190	--	--	--	--	--	--	--	--	--
23...	.150	--	--	--	--	--	--	--	--	--
27...	.040	--	--	--	--	--	--	29	323	--
JUN										
04...	.020	--	--	--	--	--	--	29	327	--
13...	.040	--	--	--	--	2.9	--	36	374	--
20...	.040	--	--	--	--	--	--	51	614	--
26...	.080	--	--	--	--	--	--	80	1093	--
JUL										
22...	.060	.350	.080	.24	--	2.4	.4	29	252	--
AUG										
21...	.070	.030	.030	.09	3.8	--	--	33	278	--
SEP										
16...	.070	.060	.050	.15	1.7	--	--	20	142	85

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT , 1979										
10...	1415	1	0	2	0	0	20	0	0	<1
DEC										
05...	1110	--	--	--	--	--	--	--	--	--
JAN , 1980										
23...	1230	2	1	1	100	80	20	0	0	<1
MAR										
12...	1500	--	--	--	--	--	--	--	--	--
APR										
24...	1300	1	0	1	200	200	6	0	--	<1
MAY										
19...	1515	3	2	1	0	0	20	0	--	<1
20...	0930	2	1	1	0	0	20	0	--	<1
22...	1215	1	0	1	0	0	5	1	--	<1
23...	0830	2	1	1	0	0	5	1	--	<1
27...	1600	2	1	1	0	0	10	0	--	<1
JUN										
04...	0945	3	1	2	0	0	10	1	--	<1
13...	1020	2	1	1	0	0	10	0	--	<1
20...	1310	2	1	1	0	0	20	1	--	<1
26...	1100	2	0	2	0	0	20	0	--	<1
JUL										
22...	1445	2	0	2	100	80	20	0	--	<1
AUG										
21...	1400	2	0	2	0	0	20	0	--	<1
SEP										
16...	1045	2	0	2	0	0	20	1	--	<1

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT , 1979										
10...	20	10	10	0	0	<3	2	1	1	270
DEC										
05...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
23...	0	0	0	1	0	<3	16	16	0	740
MAR										
12...	--	--	--	--	--	--	--	--	--	--
APR										
24...	20	20	0	2	--	<3	10	7	3	5900
MAY										
19...	0	0	0	0	--	<3	12	9	3	3200
20...	0	0	0	0	--	<3	13	10	3	1800
22...	0	0	0	0	--	<3	6	--	<10	1100
23...	0	0	0	0	--	<3	8	--	<10	1000
27...	0	0	0	0	--	<3	26	8	18	710
JUN										
04...	0	0	0	0	--	<3	7	--	<10	540
13...	0	0	0	0	--	<3	5	--	<10	950
20...	0	0	0	0	--	<3	5	--	<10	1300
26...	0	0	0	3	--	<3	6	--	<10	1700
JUL										
22...	0	0	0	4	--	<3	17	16	1	1400
AUG										
21...	10	10	0	0	--	<3	8	6	2	960
SEP										
16...	0	0	0	0	--	<3	9	--	<10	520

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)
OCT , 1979										
10...	--	70	1	0	1	30	0	30	.0	.0
DEC										
05...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
23...	670	70	7	7	0	60	10	50	.1	.1
MAR										
12...	--	--	--	--	--	--	--	--	--	--
APR										
24...	5800	100	4	2	2	470	430	40	.1	.0
MAY										
19...	3200	30	3	3	0	70	50	20	.1	.1
20...	1800	40	0	0	0	40	30	10	.6	.6
22...	1000	65	2	--	<10	40	30	6	.0	.0
23...	910	88	0	0	0	40	30	8	.0	.0
27...	670	40	97	83	14	20	7	13	.2	.0
JUN										
04...	520	22	15	--	<10	30	20	12	.2	.0
13...	910	41	0	0	0	40	30	13	.1	.0
20...	1300	39	2	1	1	50	40	15	.3	.3
26...	1700	41	3	0	0	70	60	12	.5	.4
JUL										
22...	1300	60	4	1	3	40	30	10	.2	.1
AUG										
21...	930	30	7	4	3	30	20	10	.4	.2
SEP										
16...	470	48	5	--	<10	20	7	13	.5	.4

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1979										
10...	.0	0	0	0	0	0	0	10	6	4
DEC										
05...	--	--	--	--	0	--	--	--	--	--
JAN , 1980										
23...	.0	0	0	0	0	0	0	20	20	5
MAR										
12...	--	--	--	--	3	--	--	--	--	--
APR										
24...	.1	0	0	0	0	0	0	40	--	<3
MAY										
19...	.0	0	0	0	0	0	0	20	--	<3
20...	.0	0	0	0	0	0	0	30	--	<3
22...	.0	0	0	0	0	0	0	30	--	<3
23...	.0	0	0	0	0	0	0	30	--	<3
27...	.3	0	0	0	0	0	0	40	30	9
JUN										
04...	.2	0	0	0	0	0	0	30	30	3
13...	.3	0	0	0	0	0	0	30	--	<3
20...	.0	0	0	0	0	0	0	40	30	10
26...	.1	0	0	0	1	1	0	30	--	<3
JUL										
22...	.1	0	0	0	0	0	0	30	--	<3
AUG										
21...	.2	0	0	0	0	0	0	10	3	7
SEP										
16...	.1	0	0	0	0	0	0	20	20	4

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
OCT , 1979					
10...	1415	1.42	1.65	3.22	1.18
JAN , 1980					
23...	1230	.000	.000	.000	.000
JUL					
22...	1445	2.05	3.68	.810	.690

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	NOV 8,79 0910		MAR 12,80 1500		MAY 15,80 1045		JUN 13,80 1020	
TOTAL CELLS/ML	4000		200		180		580	
DIVERSITY: DIVISION	0.6		0.9		1.1		0.9	
.CLASS	0.6		0.9		1.1		0.9	
..ORDER	0.6		1.5		1.8		1.2	
...FAMILY	0.6		3.0		2.0		2.7	
....GENUS	0.8		3.1		2.0		2.7	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	40*	21	39*	21	13	2
....CHODATELLA	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	26	1	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	52	1	--	-	77*	43	--	-
....MELOSIRA	--	-	--	-	--	-	--	-
....THALASSIOSIRA	--	-	30*	15	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	13	2
....COCCONEIS	--	-	5	3	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-	13	2
...CYMBELLACEAE								
....CYMBELLA	--	-	15	8	--	-	26	4
...DIATOMACEAE								
....DIATOMA	--	-	5	3	--	-	13	2
...FRAGILARIACEAE								
....FRAGILARIA	26	1	--	-	--	-	--	-
....HANNAEA	--	-	5	3	--	-	--	-
....SYNEDRA	26	1	15	8	--	-	13	2
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	15	8	--	-	26	4
...NAVICULACEAE								
....NAVICULA	220	6	35*	18	13	7	90*	16
...NITZSCHIACEAE								
....NITZSCHIA	130	3	25	13	39*	21	230*	40
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	13	7	64	11
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	77	13
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	--	-
....OSCILLATORIA	3500*	88	--	-	--	-	--	-
...RIVULARIACEAE								
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-
....EUTREPTIA	--	-	5	3	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-

NOTE: * - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
- OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	JUL 22,80	AUG 21,80	SEP 16,80
TIME	1445	1400	1045
TOTAL CELLS/ML	630	1200	1600
DIVERSITY: DIVISION	1.1	1.3	1.1
.CLASS	1.1	1.3	1.1
..ORDER	1.7	1.4	1.4
...FAMILY	2.3	2.1	2.1
....GENUS	2.5	2.2	2.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	26	2
....CHODATELLA	--	-	--	-	13	1
....DICTYOSPHAERIUM	--	-	--	-	13	1
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	--	-	26	2
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	13	2	13	1	13	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	26	4	--	-	51	3
....MELOSIRA	170*	27	--	-	64	4
....THALASSIOSIRA	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	26	4	26	2	--	-
....COCCONEIS	--	-	13	1	26	2
....RHOICOSPHENIA	--	-	13	1	13	1
...CYMBELLACEAE						
....CYMBELLA	26	4	52	4	13	1
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	--	-
....HANNAEA	--	-	--	-	--	-
....SYNEDRA	--	-	13	1	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	13	1	26	2
...NAVICULACEAE						
....NAVICULA	64	10	64	5	90	5
...NITZSCHIACEAE						
....NITZSCHIA	90	14	350*	29	51	3
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	13	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	13	1	26	2
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	--	-
...OSCILLATORIACEAE						
....LYNGBYA	--	-	580*	49	--	-
....OSCILLATORIA	220*	35	--	-	1000*	63
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	150	9
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	13	1	--	-
....EUTREPTIA	--	-	--	-	--	-
....TRACHELOMONAS	--	-	13	1	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	--	-	13	1	--	-

NOTE: * - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
° - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

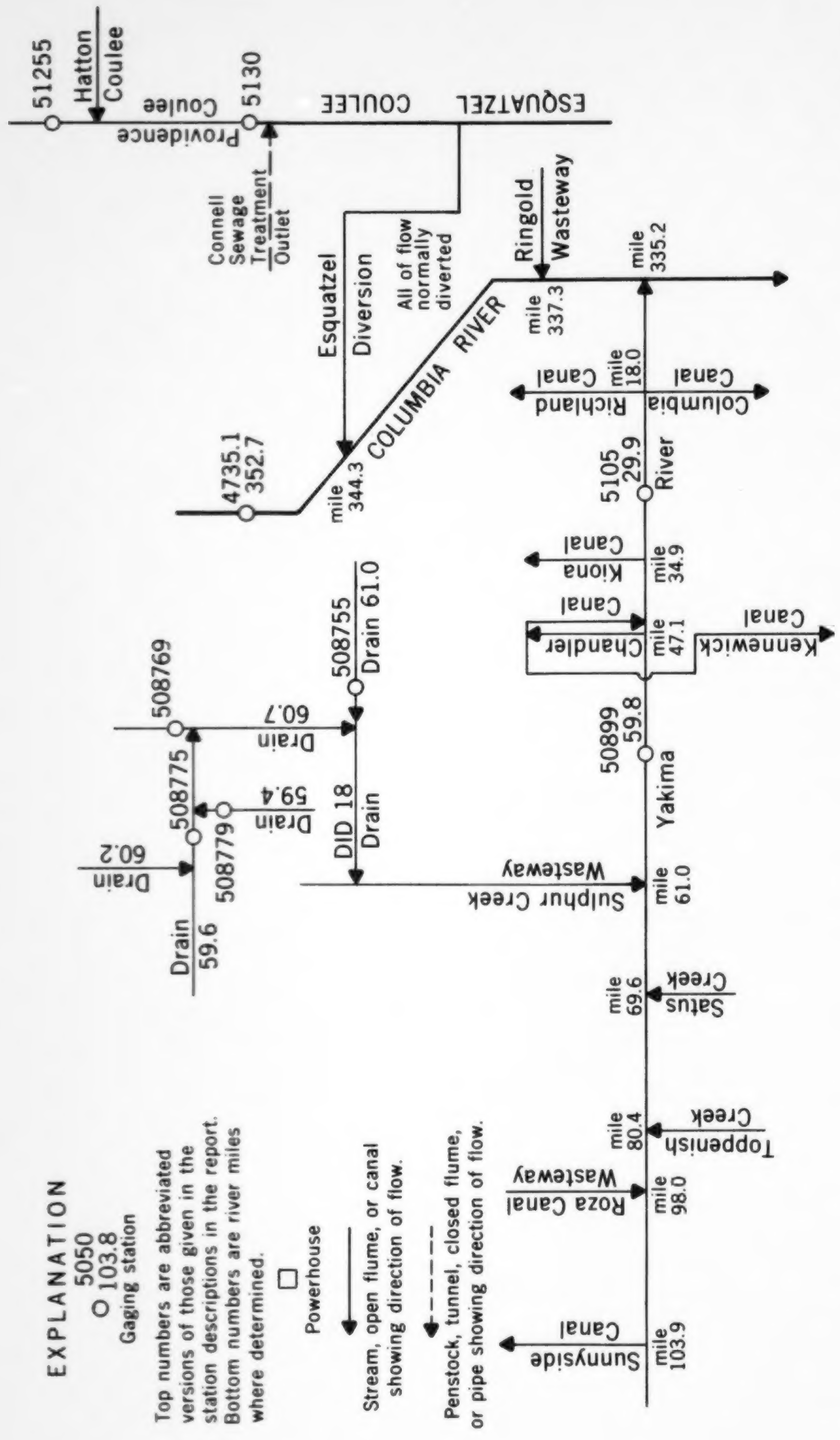
EXPLANATION
5050
103.8
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
51255
Hatton Coulee
Providence Coulee
5130
ESQUATZEL COULEE
Connell Sewage Treatment Outlet
Esquatzel Diversion
All of flow normally diverted
4735.1
352.7
mile 344.3
COLUMBIA RIVER
mile 337.3
Ringold Wasteway
mile 335.2
Richland Canal
mile 18.0
Columbia Canal
5105
29.9
River
Kiona Canal
mile 34.9
Chandler Canal
mile 47.1
Kennewick Canal
50899
59.8
Yakima
508769
508755
Drain 61.0
Drain 60.7
508775
Drain 59.4
508779
Drain 60.2
Drain 59.6
DID 18 Drain
Sulphur Creek Wasteway
mile 61.0
Satus Creek
mile 69.6
Toppenish Creek
mile 80.4
Roza Canal Wasteway
mile 98.0
Sunnyside Canal
mile 103.9

Figure 16. Gaging stations in Yakima River basin downstream from Sunnyside Canal and in Esquatzel Coulee.

12502500 AHTANUM CREEK AT UNION GAP, WA

LOCATION.--Lat 46°32'08", long 120°28'20", in SE¼SW¼ sec.8, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left upstream wingwall of Union Pacific Railway bridge at Union Gap, 1.0 mi (1.6 km) south of town of Union Gap, and at mile 0.6 (1.0 km).

DRAINAGE AREA.--173 mi^2 (448 km^2).

PERIOD OF RECORD.--May to November 1904, August 1907 to July 1908, March to October 1910, April 1911 to September 1914, May 1951 to April 1953, August 1960 to current year. Published as "near Yakima" 1904, 1907-08, 1910-12. Records for water years 1913-14 are published in WSP 1286. Chemical data (irrigation seasons only) for 1975-76 water years.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 940 ft (287 m), from topographic map. Prior to Sept. 30, 1914, nonrecording gage at approximately same site at various datums. May 12, 1951, to Sept. 30, 1972, water-stage recorder at present site at datum 3.00 ft (0.914 m) higher.

REMARKS.--Records fair except for period of no gage-height record, June 7 to July 23, which are poor. Diversions and ground-water withdrawals for irrigation of about 9,000 acres (36 km^2) above station. Return from trans-basin irrigation flows contribute to base flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft^3/s (87.8 m^3/s) Jan. 16, 1974, gage height, 10.36 ft (3.158 m); no flow many days during September and October 1904.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,020 ft^3/s (28.9 m^3/s) Feb. 29, gage height, 6.38 ft (1.945 m); minimum, 7.1 ft^3/s (0.20 m^3/s) Oct. 1, 9, 10, gage height, 2.25 ft (0.686 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	15	14	31	40	276	57	363	121	72	9.4	15
2	8.2	16	14	28	42	263	59	363	111	60	8.7	13
3	8.4	17	15	28	45	353	57	351	99	50	8.9	13
4	9.2	20	15	26	48	298	55	336	94	40	9.0	14
5	11	21	15	29	48	251	69	344	85	34	9.1	16
6	12	21	15	24	48	185	87	357	85	32	10	14
7	12	21	15	21	46	158	83	337	83	30	10	13
8	10	20	15	19	46	135	78	304	96	28	12	12
9	7.5	19	16	17	48	145	95	283	94	30	11	13
10	8.8	19	17	16	48	158	107	265	98	28	9.6	11
11	9.6	19	18	17	42	143	102	258	92	27	9.8	10
12	9.2	19	18	22	42	134	99	224	93	26	9.6	14
13	9.2	19	17	39	44	133	102	233	104	25	9.8	16
14	9.6	18	17	98	41	124	132	224	126	24	9.8	18
15	10	21	18	76	44	110	162	210	122	24	10	22
16	9.6	22	18	68	46	96	162	188	116	23	10	21
17	10	21	18	61	50	88	164	162	118	23	7.9	18
18	12	21	19	51	54	87	162	157	112	22	8.3	17
19	14	19	26	45	54	83	174	167	100	22	9.2	18
20	14	19	31	46	59	83	221	144	95	21	8.2	19
21	16	16	33	43	66	84	258	157	94	20	7.7	18
22	15	11	33	46	67	89	244	164	95	19	7.6	18
23	13	10	32	42	65	97	237	144	89	15	7.8	18
24	18	12	32	48	66	98	252	133	77	16	9.4	18
25	17	12	32	47	73	94	292	127	71	12	11	18
26	16	14	29	41	92	92	292	135	98	9.8	14	18
27	12	13	33	39	190	85	303	127	103	9.6	14	17
28	9.2	13	32	38	527	82	369	121	95	9.2	11	17
29	8.7	13	31	37	575	80	414	115	90	8.9	10	15
30	9.2	13	31	37	---	76	399	113	85	8.4	14	13
31	12	---	31	38	---	68	---	123	---	8.0	14	---
TOTAL	348.5	514	700	1218	2656	4248	5287	6729	2941	776.9	310.8	477
MEAN	11.2	17.1	22.6	39.3	91.6	137	176	217	98.0	25.1	10.0	15.9
MAX	18	22	33	98	575	353	414	363	126	72	14	22
MIN	7.5	10	14	16	40	68	55	113	71	8.0	7.6	10
AC-FT	691	1020	1390	2420	5270	8430	10490	13350	5830	1540	616	946

CAL YR 1979 TOTAL 10836.4 MEAN 29.7 MAX 114 MIN 5.0 AC-FT 21490
WTR YR 1980 TOTAL 26206.2 MEAN 71.6 MAX 575 MIN 7.5 AC-FT 51980

12503950 YAKIMA RIVER AT PARKER, WA

LOCATION.--Lat 46°30'22", long 120°27'07", in NE¼NW¼ sec.28, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, at road bridge 0.7 mi (1.1 km) east of Parker, 0.8 mi (1.3 km) upstream from Sunnyside diversion dam, and at mile 104.6 (168.3 km).

DRAINAGE AREA.--3,660 mi^2 *(9,480 km^2), approximately.*

PERIOD OF RECORD.--Water years 1959-70, 1973 to June 1980 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1959 to September 1970.
pH: August 1959 to September 1970.
WATER TEMPERATURE: August 1959 to September 1970.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is poor. Records prior to October 1972 collected at this site and published as 12505000 "near Parker."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA WATER YEAR OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT , 1979											
15...	1030	630	160	7.9	13.6	17	3.0	9.8	.20	.060	.26
NOV											
26...	1050	860	152	7.8	5.0	8	2.0	13.1	.41	.010	.42
DEC											
17...	1215	5200	96	7.6	3.4	58	24	13.2	.23	.020	.25
FEB , 1980											
25...	1015	1410	190	7.8	6.0	17	5.0	13.2	.52	.010	.53
MAR											
24...	1000	3220	135	7.8	6.5	35	8.0	12.3	.36	.030	.39
APR											
14...	1000	4650	119	7.5	10.8	46	10	10.9	.12	.000	.12
MAY											
12...	1030	2720	91	7.9	12.6	21	6.0	10.5	.13	.000	.13
JUN											
16...	1110	2480	84	8.0	16.4	17	6.0	10.8	.11	.010	.12

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979										
15...	.130	.16	.50	.63	.89	3.9	.000	.00	.120	.36
NOV										
26...	.130	.16	1.0	1.20	1.6	7.1	.110	.34	.040	.12
DEC										
17...	.130	.16	.73	.86	1.1	4.9	.120	.37	.010	.03
FEB , 1980										
25...	.160	.19	.52	.68	1.2	5.3	.080	.25	.040	.12
MAR										
24...	.100	.12	1.0	1.10	1.4	6.5	.070	.21	.030	.09
APR										
14...	.040	.05	.49	.53	.65	2.8	.110	.34	.030	.09
MAY										
12...	.100	.12	.43	.53	.66	2.9	.070	.21	.020	.06
JUN										
16...	.060	.07	.55	.61	.73	3.2	.050	.15	.040	.12

12508755 DRAIN 61.0 ABOVE DRAIN 61.4 NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°20'49", long 119°56'28", in SE¼SE¼ sec.16, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank, 50 ft (15 m) upstream from Drain 61.4, 200 ft (61 m) upstream from Van Belle road, and 3.1 mi (5.0 km) northeast of Sunnyside.

DRAINAGE AREA.--3.27 mi^2 (8.47 km^2), of which 0.29 mi^2 (0.75 km^2) is irrigated and below Roza Canal.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1979 to current year.

GAGE.--Water-stage recorder and artificial control. Altitude of gage 875 ft (267 m), from topographic map.

REMARKS.--Water-discharge records excellent. Principle source of flow is waste and ground-water return flows from irrigation. Station operated as part of a special project to determine sediment loss from irrigated acreages. Flow wastes into Sulphur Creek wasteway.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7.8 ft^3/s (0.22 m^3/s) Feb. 20, 1980; gage height, 5.45 ft (1.661 m); minimum daily discharge, 0.02 ft^3/s (0.0006 m^3/s) several days during February 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7.8 ft^3/s (0.22 m^3/s) Feb. 20, gage height, 5.45 ft (1.661 m); minimum daily discharge, 0.02 ft^3/s (0.0006 m^3/s) several days during February.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	.24	.03	.03	.03	.03	.04	.27	.14	.30	.37	.23
2	.08	.18	.03	.03	.02	.03	.07	.21	.16	.26	.30	.18
3	.04	.18	.03	.03	.02	.03	.13	.37	.14	.27	.20	.16
4	.04	.20	.03	.03	.02	.03	.18	.44	.13	.29	.24	.16
5	.04	.24	.03	.03	.02	.03	.12	.39	.22	.26	.26	.15
6	.04	.15	.03	.03	.05	.03	.16	.27	.33	.26	.27	.14
7	.04	.04	.03	.03	.03	.03	.19	.27	.35	.26	.26	.15
8	.03	.03	.03	.03	.02	.03	.27	.29	.35	.31	.24	.19
9	.03	.03	.03	.03	.03	.03	.46	.22	.46	.42	.25	.16
10	.04	.03	.03	.03	.03	.03	.39	.15	.59	.42	.21	.17
11	.12	.03	.03	.03	.03	.04	.27	.15	.56	.43	.17	.18
12	.10	.03	.03	.03	.02	.04	.21	.18	.54	.45	.12	.14
13	.03	.03	.03	.03	.02	.04	.29	.27	.59	.48	.15	.24
14	.03	.03	.03	.03	.03	.04	.41	.29	.65	.46	.21	.16
15	.03	.03	.03	.03	.02	.04	.35	.35	.87	.36	.23	.17
16	.03	.03	.03	.03	.02	.04	.33	.24	.77	.34	.25	.13
17	.04	.03	.03	.03	.19	.04	.33	.14	.46	.32	.29	.13
18	.07	.03	.03	.03	.41	.04	.37	.18	.33	.35	.23	.13
19	.05	.03	.03	.03	1.4	.04	.31	.21	.15	.27	.23	.12
20	.05	.03	.03	.03	3.0	.04	.31	.26	.22	.26	.22	.13
21	.08	.03	.03	.03	.41	.04	.35	.16	.18	.36	.18	.12
22	.05	.03	.03	.03	.04	.04	.56	.21	.18	.43	.10	.13
23	.03	.03	.03	.03	.04	.04	.46	.18	.18	.45	.09	.14
24	.05	.03	.03	.03	.03	.04	.33	.37	.27	.47	.09	.15
25	.03	.03	.03	.03	.03	.04	.37	.39	.49	.33	.10	.15
26	.03	.03	.03	.03	.03	.04	.54	.59	.44	.24	.20	.15
27	.03	.03	.03	.03	.15	.04	.41	.35	.28	.22	.20	.16
28	.03	.03	.03	.03	.04	.04	.31	.27	.32	.27	.22	.16
29	.13	.03	.03	.03	.03	.04	.18	.33	.30	.31	.24	.16
30	.30	.03	.03	.03	---	.04	.21	.21	.28	.31	.24	.14
31	.33	---	.03	.03	---	.04	---	.19	---	.31	.24	---
TOTAL	2.17	1.92	.93	.93	6.21	1.14	8.91	8.48	10.93	10.47	6.60	4.68
MEAN	.070	.064	.030	.030	.21	.037	.30	.27	.36	.34	.21	.16
MAX	.33	.24	.03	.03	3.0	.04	.56	.59	.87	.48	.37	.24
MIN	.03	.03	.03	.03	.02	.03	.04	.14	.13	.22	.09	.12
AC-FT	4.3	3.8	1.8	1.8	12	2.3	18	17	22	21	13	9.3

WTR YR 1980 TOTAL 63.29 MEAN .17 MAX 3.0 MIN .02 AC-FT 126

YAKIMA RIVER BASIN

12508769 DRAIN 60.7 NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°20'54", long 119°57'05", in SE¼SE¼SW¼ sec.16, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank, 300 ft (91 m) above confluence with Drain 59.6, 1.2 mi (1.9 km) downstream from Bridgeman Road, and 2.8 mi (4.5 km) northeast of Sunnyside.

DRAINAGE AREA.--0.92 mi^2 (2.38 km^2), of which 0.41 mi^2 (1.06 km^2) is irrigated and below Roza Canal.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1979 to current year.

GAGE.--Water-stage recorder and artificial control. Altitude of gage, 850 ft (262 m), from topographic map.

REMARKS.--Water-discharge records excellent. Principle source of flow is waste and ground water return flows from irrigation. Station operated as part of a special project to determine sediment loss from irrigated land. Flow wastes into Drain 59.6, then into DID 18 Drain and then into Sulphur Creek wasteway.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5.9 ft^3/s (0.17 m^3/s) Feb. 19, 1980, gage height, 8.55 ft (2.606 m); minimum, 0.28 ft^3/s (0.008 m^3/s) May 16, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5.9 ft^3/s (0.17 m^3/s) Feb. 19, gage height, 8.55 ft (2.606 m); minimum daily discharge, 0.58 ft^3/s (0.018 m^3/s) May 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.74	1.1	.71	.77	.66	.90	.74	.65	1.6	2.2	1.5	.82
2	.74	1.1	.71	.78	.65	.90	.77	.66	1.7	2.3	1.5	.85
3	.74	1.2	.71	.77	.65	.91	.91	.63	1.7	1.9	1.8	.90
4	.74	1.4	.74	.78	.66	.91	.90	.58	1.4	1.3	1.9	.93
5	.74	1.4	.74	.78	.65	.91	.92	.65	1.3	1.2	1.7	.97
6	.74	1.3	.74	.75	.73	.93	.96	.76	1.4	1.0	1.5	1.1
7	.74	.87	.74	.74	.73	.91	.96	.86	1.4	.97	1.2	1.2
8	.71	.77	.74	.74	.68	.86	.87	.92	1.4	1.1	1.3	1.1
9	.71	.77	.74	.80	.69	.86	.74	1.2	1.3	1.6	1.3	1.1
10	.74	.77	.74	.78	.71	.87	.71	1.0	1.4	1.7	1.4	1.0
11	.77	.77	.74	.78	.71	.87	.68	.77	1.4	1.9	1.4	.88
12	.77	.77	.74	.87	.74	.86	.68	.79	1.5	2.0	1.5	.80
13	.77	.75	.75	.87	.74	.88	.65	.90	1.6	2.0	1.6	.85
14	.74	.74	.77	.84	.71	.87	.65	1.2	1.5	1.7	1.5	.75
15	.86	.74	.77	.80	.71	.83	.65	1.3	1.3	1.6	1.4	.70
16	.86	.76	.77	.81	.71	.83	.65	1.2	1.5	1.5	1.1	1.0
17	.86	.78	.77	.83	.96	.83	.74	1.2	1.3	1.5	1.2	1.1
18	.81	.75	.77	.81	1.6	.83	.89	1.4	1.1	1.4	1.1	1.1
19	.81	.73	.77	.80	2.0	.83	.80	1.2	.90	1.4	.87	1.1
20	.76	.71	.77	.80	2.1	.83	.80	.97	.93	1.4	.86	1.1
21	.74	.71	.75	.78	1.1	.81	.74	1.0	.93	1.6	.82	1.1
22	.77	.72	.74	.74	.98	.77	.72	1.3	1.0	1.4	.82	1.1
23	.74	.74	.77	.74	.96	.77	.71	.98	1.0	1.4	.80	1.1
24	.76	.74	.77	.74	.94	.77	.74	1.1	1.1	1.3	.77	1.1
25	.77	.72	.77	.74	.93	.77	.76	1.3	1.0	1.3	.76	1.2
26	.74	.71	.74	.71	.95	.77	.71	1.6	1.7	1.3	.77	1.2
27	.75	.70	.74	.75	.99	.77	.68	1.1	2.0	1.4	.76	1.2
28	.74	.68	.74	.72	.96	.77	.64	1.0	2.4	1.3	.77	1.2
29	.82	.68	.74	.69	.93	.74	.61	1.1	2.3	1.4	.82	1.2
30	.86	.69	.74	.68	---	.74	.61	1.2	2.4	1.4	.86	1.3
31	1.0	---	.75	.68	---	.74	---	1.3	---	1.6	.84	---
TOTAL	24.04	25.27	23.18	23.87	26.53	25.82	22.59	31.82	44.26	47.07	36.42	31.13
MEAN	.78	.84	.75	.77	.91	.83	.75	1.03	1.48	1.52	1.17	1.04
MAX	1.0	1.4	.77	.87	2.1	.93	.96	1.6	2.4	2.3	1.9	1.3
MIN	.71	.68	.71	.68	.65	.74	.61	.58	.90	.97	.76	.70
AC-FT	48	50	46	47	53	51	45	63	88	93	72	62

WTR YR 1980 TOTAL 362.08 MEAN .99 MAX 2.4 MIN .58 AC-FT 718

12508775 DRAIN 59.6 BELOW DRAIN 60.2 NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°21'10", long 119°56'58", in SE¼NW¼SW¼ sec.16, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on left bank 10 ft (3.0 m) downstream from mouth of Drain 60.2, 300 ft (91 m) upstream from confluence with Drain 59.4, 0.61 mi (0.98 m) south of SLI road, and 3 mi (4.8 km) northeast of Sunnyside.

DRAINAGE AREA.--0.68 mi^2 (1.76 km^2), all below Roza Canal.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1979 to current year.

GAGE.--Water-stage recorder and artificial control. Altitude of gage is 865 ft (264 m) from topographic map.

REMARKS.--Water-discharge records excellent. Principle source of flow is waste and ground water return flows from irrigation. Station is operated as part of a special project to determine sediment losses from irrigated land.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge,10 ft^3/s (0.283 m^3/s) Feb. 19, 1980; minimum daily, 0.93 ft^3/s (0.026 m^3/s) Jan. 30, 31, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge,10 ft^3/s (0.283 m^3/s) Feb. 19; minimum daily, 0.93 ft^3/s (0.026 m^3/s) Jan. 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.6	1.2	1.2	.95	1.2	1.0	2.2	1.7	2.2	2.7	2.2
2	1.1	1.6	1.2	1.2	.98	1.2	1.0	2.0	1.8	2.3	2.7	2.1
3	1.0	1.7	1.2	1.2	1.0	1.1	1.0	1.7	1.8	2.3	2.6	2.2
4	1.1	1.9	1.2	1.2	1.0	1.1	1.0	1.5	1.9	2.5	2.4	2.0
5	1.0	1.9	1.2	1.2	1.0	1.2	1.0	1.5	1.8	2.4	2.1	2.0
6	1.0	1.7	1.2	1.1	1.2	1.2	1.0	1.7	1.9	2.3	1.9	2.0
7	1.0	1.2	1.2	1.1	1.1	1.1	1.0	1.5	2.0	2.1	1.9	2.2
8	1.0	1.2	1.2	1.1	1.1	1.1	1.1	1.8	1.9	2.3	2.2	2.1
9	1.0	1.2	1.2	1.1	1.1	1.1	1.1	2.1	2.0	2.4	2.4	2.1
10	1.0	1.2	1.1	1.1	1.1	1.1	1.0	2.0	1.8	2.2	2.4	2.0
11	1.0	1.2	1.1	1.1	1.1	1.1	1.0	2.0	1.9	2.2	2.2	2.1
12	1.0	1.2	1.1	1.2	1.0	1.1	1.2	2.1	2.0	2.2	2.4	2.2
13	1.0	1.2	1.2	1.4	1.0	1.1	1.2	1.8	2.2	2.2	2.3	3.0
14	1.0	1.2	1.2	1.3	1.0	1.1	1.2	1.9	1.8	2.2	2.0	2.1
15	1.0	1.2	1.2	1.2	1.0	1.1	1.3	1.8	1.7	2.3	2.1	2.1
16	1.0	1.3	1.2	1.2	1.0	1.1	1.4	1.9	2.0	2.5	2.5	2.1
17	1.0	1.2	1.2	1.2	1.1	1.1	1.6	1.9	2.0	2.6	2.9	1.9
18	1.1	1.2	1.2	1.1	1.9	1.1	1.7	2.0	1.9	2.6	2.8	2.1
19	1.2	1.2	1.2	1.1	3.4	1.1	1.6	1.9	1.8	2.8	2.0	2.0
20	1.1	1.2	1.2	1.1	2.6	1.1	1.9	1.9	2.2	2.8	1.9	2.1
21	1.1	1.2	1.2	1.1	1.3	1.1	1.8	2.2	2.1	2.7	2.1	1.9
22	1.1	1.2	1.1	1.1	1.2	1.1	1.5	2.4	2.2	2.7	2.0	1.9
23	1.1	1.2	1.1	1.1	1.2	1.1	1.5	2.1	2.1	2.9	1.9	1.9
24	1.2	1.2	1.1	1.1	1.2	1.1	1.5	1.9	2.2	2.7	2.3	1.9
25	1.2	1.2	1.1	1.1	1.2	1.0	1.6	1.9	2.1	2.6	2.1	2.3
26	1.2	1.2	1.1	1.0	1.4	1.0	1.7	2.5	2.1	2.7	1.7	2.2
27	1.2	1.2	1.1	1.0	1.4	1.0	1.5	2.0	2.0	2.8	1.7	2.4
28	1.4	1.2	1.1	1.0	1.3	1.0	1.5	1.8	2.0	2.7	1.6	2.1
29	1.2	1.1	1.1	.98	1.2	1.0	1.3	1.8	1.9	2.7	1.7	2.1
30	1.4	1.2	1.1	.93	---	1.0	1.6	1.8	2.0	2.7	2.0	2.1
31	1.7	---	1.1	.93	---	1.0	---	1.7	---	2.6	2.1	---
TOTAL	34.5	39.2	35.9	34.74	37.03	33.8	39.8	59.3	58.8	77.2	67.6	63.4
MEAN	1.11	1.31	1.16	1.12	1.28	1.09	1.33	1.91	1.96	2.49	2.18	2.11
MAX	1.7	1.9	1.2	1.4	3.4	1.2	1.9	2.5	2.2	2.9	2.9	3.0
MIN	1.0	1.1	1.1	.93	.95	1.0	1.0	1.5	1.7	2.1	1.6	1.9
AC-FT	68	78	71	69	73	67	79	118	117	153	134	126

WTR YR 1980 TOTAL 581.27 MEAN 1.59 MAX 3.4 MIN .93 AC-FT 1150

12508779 DRAIN 59.4 NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°21'09", long 119°57'02", in SW¼NE¼SW¼ sec.16, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank, 200 ft (61 m) upstream from confluence with Drain 59.6, 0.69 mi (1.11 km) south of SLI Road, and 3 mi (4.8 km) northeast of Sunnyside.

DRAINAGE AREA.--0.31 mi^2 (0.80 km^2), all below Roza Canal.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1979 current year.

GAGE.--Water-stage recorder and artificial control. Altitude of gage is 865 ft (264 m), from topographic map.

REMARKS.--Water-discharge records excellent. Principle source of water is waste and ground water return flow from irrigation. Station operated as part of a special project to determine sediment losses from irrigated land. Flow wastes into Drain 59.6 where some is reused for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11 ft^3/s (0.312 m^3/s) Feb. 19, 1980; minimum daily discharge, 0.01 ft^3/s (0.0003 m^3/s) Mar. 27 to Apr. 4, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11 ft^3/s (0.312 m^3/s) Feb. 19; minimum daily discharge, 0.01 ft^3/s (0.0003 m^3/s) Mar. 27 to Apr. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.17	.05	.05	.03	.04	.01	.16	.48	.74	.69	.04
2	.05	.42	.05	.05	.04	.04	.01	.06	.09	.53	.90	.03
3	.05	.44	.05	.05	.04	.04	.01	.07	.11	.12	.93	.03
4	.05	.44	.05	.05	.03	.04	.01	.08	.07	.06	.90	.09
5	.05	.06	.05	.05	.03	.04	.05	.21	.04	.06	.87	.16
6	.05	.06	.05	.05	.03	.04	.07	.58	.04	.10	.46	.14
7	.05	.05	.05	.05	.03	.04	.07	.63	.24	.06	.09	.11
8	.05	.05	.05	.05	.03	.04	.09	.41	.25	.31	.08	.07
9	.05	.05	.05	.05	.03	.04	.05	.53	.29	.58	.08	.08
10	.05	.05	.05	.05	.06	.04	.04	.90	.18	.48	.04	.05
11	.05	.05	.05	.04	.04	.04	.04	.93	.11	.27	.09	.03
12	.05	.05	.05	.05	.03	.04	.07	.80	.11	.22	.10	.03
13	.05	.05	.05	.06	.03	.03	.06	.51	.24	.33	.06	.11
14	.05	.05	.05	.05	.03	.03	.06	.58	.37	.22	.05	.21
15	.05	.05	.05	.05	.03	.03	.04	.53	.39	.33	.09	.15
16	.05	.05	.05	.05	.03	.03	.01	.37	.44	.22	.09	.12
17	.05	.05	.05	.05	.37	.03	.02	.26	.37	.09	.06	.21
18	.05	.05	.05	.05	1.7	.02	.18	.24	.27	.30	.11	.07
19	.05	.05	.05	.04	3.1	.02	.16	.26	.18	.25	.16	.04
20	.05	.05	.05	.04	2.3	.02	.09	.33	.29	.31	.16	.10
21	.05	.05	.05	.05	.38	.02	.21	.44	.31	.25	.18	.22
22	.05	.05	.05	.04	.39	.02	.16	.37	.12	.16	.15	.15
23	.05	.05	.05	.04	.24	.02	.07	.29	.06	.25	.24	.15
24	.05	.05	.05	.04	.07	.02	.19	.31	.07	.15	.27	.26
25	.05	.05	.05	.04	.03	.02	.24	.35	.12	.02	.18	.08
26	.05	.05	.05	.04	.05	.02	.22	.37	.33	.10	.07	.06
27	.05	.05	.05	.03	.04	.01	.20	.16	.22	.22	.11	.21
28	.05	.05	.05	.03	.04	.01	.15	.39	.02	.63	.09	.31
29	.05	.05	.05	.03	.04	.01	.12	.69	.02	.80	.09	.22
30	.05	.05	.05	.03	---	.01	.19	.66	.26	.51	.08	.10
31	.06	---	.05	.03	---	.01	---	.63	---	.51	.04	---
TOTAL	1.56	2.79	1.55	1.38	9.29	.86	2.89	13.10	6.09	9.18	7.51	3.63
MEAN	.050	.093	.050	.045	.32	.028	.096	.42	.20	.30	.24	.12
MAX	.06	.44	.05	.06	3.1	.04	.24	.93	.48	.80	.93	.31
MIN	.05	.05	.05	.03	.03	.01	.01	.06	.02	.02	.04	.03
AC-FT	3.1	5.5	3.1	2.7	18	1.7	5.7	26	12	18	15	7.2

WTR YR 1980 TOTAL 59.83 MEAN .16 MAX 3.1 MIN .01 AC-FT 119

12508990 YAKIMA RIVER AT MABTON, WA

LOCATION.--Lat 46°13'53", long 119°59'54", in SW¼SW¼ sec.30, T.9 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank under county highway bridge, at east boundary of Yakima Indian Reservation, 1.1 mi (1.8 km) north of Mabton, and at mile 59.8 (96.2 km).

DRAINAGE AREA.--5,359 mi^2 (13,880 km^2).

PERIOD OF RECORD.--October 1970 to current year. Chemical data 1971, 1974, and March 1975 to September 1976 (irrigation seasons only).

GAGE.--Water-stage recorder. Altitude of gage is 643 ft (196.0 m), from topographic map. Prior to Oct. 1, 1976, at datum 10 ft (3.05 m) higher.

REMARKS.--Records good. Flow affected by storage in five reservoirs and by diversions above station for irrigation above and below station of about 424,000 acres (1,720 km^2) and by return flow from irrigated area.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,200 ft^3/s (1,050 m^3/s) Jan. 17, 1974, gage height, 25.30 ft (7.711 m) present datum; minimum daily, 320 ft^3/s (9.06 m^3/s) Mar. 25, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,500 ft^3/s (382 m^3/s) Apr. 30, gage height, 16.91 ft (5.154 m); minimum daily discharge, 554 ft^3/s (15.7 m^3/s) Oct. 17, 18, gage height, 9.78 ft (2.981 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	612	1440	1240	3850	1350	10700	4150	12100	2880	2190	1330	2000
2	595	1430	1250	3600	1450	10000	3940	10200	3210	1630	1350	2050
3	612	1370	1280	3400	1600	9820	3660	9880	3200	1360	1330	2230
4	629	1370	1510	3230	2150	9800	3490	9110	2850	1440	1420	1990
5	629	1360	1950	3070	2400	9780	3470	8490	2570	1850	1470	1830
6	629	1490	2170	2850	2600	9230	3880	8390	2200	1840	1370	1700
7	638	1630	2360	2550	2630	8370	4410	8110	2020	1630	1370	1670
8	638	1620	2420	2250	2570	7810	4330	7090	1840	1440	1400	1700
9	612	1570	2440	2050	2510	7490	4050	5690	2100	1360	1430	1590
10	578	1510	2390	1900	2440	7370	4480	4920	2200	1690	1500	1500
11	612	1490	2660	1900	2360	7090	4990	4570	2080	1700	1520	1520
12	595	1430	2830	1950	2320	6830	5050	4190	1840	1690	1490	1510
13	578	1400	2860	3750	2240	6570	5300	3790	2100	1720	1430	1560
14	570	1380	2830	4800	2190	6440	5850	3710	2620	1710	1480	1830
15	578	1360	2740	4900	2020	6090	6690	3740	2890	1590	1440	2200
16	612	1370	4030	4550	1910	5730	7210	3500	2890	1470	1450	2080
17	570	1370	5960	4210	1920	5370	7430	3020	3320	1600	1510	1870
18	595	1340	5830	3900	2240	5120	7750	3940	3870	1600	1650	1790
19	821	1320	7230	3370	2660	4740	7890	4570	3690	1460	1820	1770
20	802	1320	7850	2890	3620	4650	8790	5010	3370	1690	1710	1850
21	930	1300	7770	2650	3450	4780	10100	4540	3130	1680	1600	1900
22	1170	1300	7490	2500	3090	4900	11000	4520	3050	1480	1520	1930
23	1230	1310	7110	2400	2890	5090	10800	3920	3010	1290	1620	1930
24	1080	1320	6770	2300	2830	5260	10900	3380	2720	1370	1660	1920
25	1240	1320	6340	2250	2850	4730	11300	2960	2500	1390	1640	1810
26	1390	1310	5890	2000	3330	4570	11100	3050	3210	1270	1630	1780
27	1340	1280	5490	1800	5680	4590	10500	3280	3500	1320	1590	1820
28	1330	1240	5110	1650	8090	4540	10500	3300	3090	1390	1580	1860
29	1380	1170	4760	1500	10400	4320	11800	3130	2830	1350	1610	1820
30	1460	1170	4460	1450	---	4330	13200	2710	2600	1240	1690	1740
31	1480	---	4120	1400	---	4300	---	2800	---	1240	1860	---
TOTAL	26535	41290	129140	86870	87790	200410	218010	161610	83380	47680	47470	54670
MEAN	856	1376	4166	2802	3027	6465	7267	5213	2779	1538	1531	1822
MAX	1480	1630	7850	4900	10400	10700	13200	12100	3870	2190	1860	2230
MIN	570	1170	1240	1400	1350	4300	3470	2710	1840	1240	1330	1500
AC-FT	52630	81900	256100	172300	174100	397500	432400	320600	165400	94570	94160	108400

CAL YR 1979 TOTAL 602077 MEAN 1650 MAX 7850 MIN 570 AC-FT 1194000
WTR YR 1980 TOTAL 1184855 MEAN 3237 MAX 13200 MIN 570 AC-FT 2350000

12510500 YAKIMA RIVER AT KIONA, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 46°15'13", long 119°28'37", in SE¼NE¼ sec.19, T.9 N., R.27 E., Benton County, Hydrologic Unit 17030003, on left bank just upstream from abandoned highway bridge pier at Kiona, 0.1 mi (0.2 km) upstream from highway bridge, 3.6 mi (5.8 km) downstream from Corral Canyon Creek, 5.0 mi (8.0 km) downstream from intake of Kiona Canal, and at mile 29.9 (48.1 km).

DRAINAGE AREA.--5,615 mi^2 (14,543 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to December 1895 (gage heights only, fragmentary), August 1896 to March 1915, February 1933 to current year.

REVISED RECORDS.--WSP 214: 1905. WSP 1122: 1934(M). WSP 1216: 1949-50. WSP 1286: 1907(M), 1909, 1936. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 454.41 ft (138.504 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1915, nonrecording gages at approximately same site and datum. Feb. 6, 1933, to July 26, 1934, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Diversions above station for irrigation of about 424,000 acres (1,720 km^2). Flow affected by diversions and by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. The Kiona Canal bypasses station with a mean flow of approximately 23 ft^3/s (0.65 m^3/s) for irrigation of about 1,100 acres (4.5 km^3) below station. Diversion by the Kennewick Canal, which bypasses station, began in August 1956, and diverted 84,070 acre-ft (104 hm^3) during the current water year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,000 ft^3/s (1,900 m^3/s) Dec. 23, 1933, gage height, 21.57 ft (6.575 m), from high-water marks; minimum observed, 105 ft^3/s (2.97 m^3/s) Sept. 11, 1906, gage height, 2.35 ft (0.716 m), datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,000 ft^3/s (368 m^3/s) May 1, gage height, 10.56 ft (3.219 m), minimum, 490 ft^3/s (13.9 m^3/s) Oct. 4, gage height, 2.20 ft (0.671 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	497	1920	1580	4070	1450	11500	4300	12500	3110	2660	1340	2070
2	497	1910	1630	3860	1550	10600	4140	10600	3330	2150	1430	2190
3	497	1890	1640	3670	1800	10100	3950	9900	3350	1760	1450	2310
4	497	1870	1760	3530	2600	10000	3710	9410	3090	1640	1470	2290
5	532	1800	2210	3360	2840	10000	3670	8530	2790	1960	1560	2080
6	546	1920	2490	3210	2860	9710	3800	8240	2430	2110	1560	1910
7	574	2100	2770	2850	2880	8560	4250	8110	2210	1970	1490	1810
8	588	2080	2910	2600	2830	7860	4440	7270	2080	1750	1510	1800
9	580	2030	2950	2200	2730	7340	4290	5840	2150	1600	1530	1770
10	548	1960	2910	2100	2660	7280	4250	5000	2280	1680	1560	1620
11	548	1910	3040	2100	2610	7050	4720	4560	2270	1860	1630	1580
12	562	1870	3310	2350	2560	6740	4970	4300	2100	1950	1640	1600
13	584	1830	3370	3750	2510	6400	5060	3940	2090	1910	1580	1690
14	597	1800	3360	4800	2450	6290	5490	3770	2400	1930	1560	1860
15	673	1750	3180	5020	2360	6030	6120	3770	2750	1850	1580	2240
16	874	1810	3790	4570	2210	5680	6980	3660	3010	1700	1540	2300
17	890	1810	6340	4370	2170	5320	7170	3240	3220	1720	1590	2120
18	880	1770	6180	4110	2430	5090	7400	3520	3080	1800	1710	2060
19	1130	1800	7240	3640	2820	4690	7590	4260	3840	1690	1910	2010
20	1170	1790	8250	3180	3830	4580	8140	4890	3570	1710	1920	2070
21	1250	1720	8190	2960	3760	4630	9460	4580	3310	1850	1790	2110
22	1480	1700	7830	2800	3370	4730	10600	4460	3200	1710	1670	2130
23	1600	1720	7430	2700	3130	4880	10900	4070	3140	1510	1680	2150
24	1500	1730	7020	2550	3050	5080	10800	3550	2930	1380	1780	2180
25	1540	1720	6580	2350	3050	4850	11100	3140	2660	1480	1770	2090
26	1780	1730	6090	2200	3390	4520	11200	3040	2940	1420	1730	2010
27	1760	1710	5650	2050	5140	4470	10700	3290	3650	1350	1710	2000
28	1750	1690	5260	1800	7760	4480	10300	3400	3290	1430	1670	2070
29	1820	1610	4960	1700	10300	4390	11000	3350	3040	1470	1690	2050
30	1950	1560	4660	1550	---	4360	12400	3030	2850	1380	1760	1980
31	1950	---	4370	1500	---	4400	---	2910	---	1290	1910	---
TOTAL	31644	54590	138950	93500	93100	201610	212900	164130	86960	53670	50720	60150
MEAN	1021	1820	4482	3016	3210	6504	7097	5295	2899	1731	1636	2005
MAX	1950	2100	8250	5020	10300	11500	12400	12500	3880	2660	1920	2310
MIN	497	1560	1580	1500	1450	4360	3670	2910	2080	1290	1340	1580
AC-FT	62770	108300	275600	185500	184700	399900	422300	325600	172500	106500	100600	119300

CAL YR 1979 TOTAL 641556 MEAN 1758 MAX 8250 MIN 497 AC-FT 1273000
WTR YR 1980 TOTAL 1241924 MEAN 3393 MAX 12500 MIN 497 AC-FT 2463000

12510500 YAKIMA RIVER AT KIOMA, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--Water-quality data obtained at the highway bridge 0.1 mi (0.2 km) downstream from gage.

PERIOD OF RECORD.--Water years 1955 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1952 to September 1969 (composite samples), October 1969 to September 1977.
WATER TEMPERATURES: December 1952 to September 1980 (discontinued).
SUSPENDED SEDIMENT: June 1977 to October 1980 (discontinued).

REMARKS.--Water temperatures collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 29.0°C July 18, 1960, July 12, 1961; minimum, 0.0°C on several days during winter months most years.
SUSPENDED CONCENTRATIONS: Maximum daily mean, 1,750 mg/L Dec. 4, 1977; minimum daily mean, 1 mg/L Dec. 11, 14, 1978.
SEDIMENT LOADS: Maximum daily, 110,000 tons (99,800 tonne) Dec. 4, 1977; minimum daily, 6.2 tons (56.6 tonne) Dec. 14, 1978.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum observed, 24.0°C July 20; minimum observed, 0.0°C January 27, 28.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,350 mg/L Feb. 29; minimum daily mean, 3 mg/L July 7.
SEDIMENT LOADS: Maximum daily, 37,500 tons (34,000 tonne) Feb. 29; minimum daily, 16 tons (15 tonne) July 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT , 1979											
09...	1315	--	435	8.9	16.1	5.0	--	12.1	52	13	171
NOV											
06...	1130	1850	308	7.4	10.0	5.2	--	10.2	63	380	123
DEC											
04...	1445	1780	330	7.9	5.8	3.2	--	13.0	27	340	132
JAN , 1980											
22...	1400	4770	245	7.8	2.1	3.0	--	14.7	28	210	94
FEB											
13...	1500	2500	287	7.7	3.0	2.7	--	13.8	27	300	93
MAR											
04...	1300	10000	195	7.9	7.6	48	--	11.0	K88	720	74
APR											
16...	1330	6980	148	--	12.8	14	--	9.8	100	--	56
MAY											
06...	1500	8320	124	--	15.6	21	--	9.6	310	110	50
21...	1630	4460	185	7.9	17.4	63	--	9.1	570	--	67
30...	1330	2930	218	7.8	17.4	9.4	--	10.1	260	47	87
JUN											
06...	1115	2400	245	8.4	16.5	7.9	--	9.7	54	31	88
12...	1300	2080	269	8.3	18.0	5.7	20	9.7	120	28	96
19...	1145	3840	216	7.8	20.3	130	--	7.9	830	920	73
25...	1215	2640	240	8.2	18.7	18	--	9.2	K1000	--	85
JUL											
24...	1100	1360	306	8.4	23.6	7.3	--	8.6	100	390	116
AUG											
11...	1400	1630	313	8.6	23.0	3.5	--	9.0	55	19	114
SEP											
09...	1510	1750	319	8.6	20.6	6.9	--	10.4	230	--	114

DATE	ACIDITY (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT , 1979											
09...	--	42	16	30	26	1.0	5.8	190	.3	45	9.6
NOV											
06...	--	31	11	20	25	.8	3.7	130	8.2	21	8.1
DEC											
04...	--	33	12	22	26	.8	3.5	140	2.8	21	9.3
JAN , 1980											
22...	--	23	9.1	16	26	.7	2.6	100	2.5	17	7.2
FEB											
13...	--	22	9.3	16	26	.7	2.5	97	3.0	20	7.6
MAR											
04...	--	18	7.1	10	21	.5	3.0	74	1.4	11	5.2
APR											
16...	--	14	5.2	7.4	21	.4	1.8	60	--	5.8	3.2
MAY											
06...	--	13	4.4	6.5	21	.4	1.4	50	--	5.0	2.6
21...	5	17	6.0	9.3	22	.5	2.0	53	1.0	15	12
30...	10	22	7.8	12	22	.5	2.3	84	2.1	16	13
JUN											
06...	14	22	8.1	12	22	.5	2.5	100	.6	13	5.3
12...	--	24	8.9	15	24	.6	1.3	110	.8	14	5.4
19...	--	19	6.4	11	23	.5	2.6	83	2.0	13	5.4
25...	--	22	7.5	12	22	.5	2.5	91	.9	13	5.4
JUL											
24...	--	30	10	17	23	.7	3.5	120	.7	34	5.2
AUG											
11...	--	29	10	16	22	.6	3.2	120	.4	21	7.1
SEP											
09...	.0	29	10	17	23	.7	3.5	120	.4	19	7.5

K Results based on colony count outside the acceptable range (non-ideal colony count).

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)
OCT , 1979											
09...	.3	32	290	295	.39	--	13	1.5	1.7	.060	.000
NOV											
06...	.2	27	200	200	.27	999	44	1.9	1.8	.070	.070
DEC											
04...	.2	29	221	214	.30	1062	6	1.9	1.9	.030	.030
JAN , 1980											
22...	.2	26	174	161	.23	2241	11	1.2	1.2	.180	.090
FEB											
13...	.1	24	158	160	.21	1067	4	1.0	1.2	.130	.100
MAR											
04...	.2	24	134	123	.18	3618	229	1.1	1.1	.080	.080
APR											
16...	.1	21	98	94	.13	1847	113	.30	.33	.040	.040
MAY											
06...	.1	19	100	82	.13	2246	113	.36	.41	.060	.030
21...	.2	20	124	114	.16	1493	16	.76	.74	.040	.060
30...	.1	23	143	147	.19	1131	--	1.0	.95	.060	.060
JUN											
06...	.2	21	148	144	.20	959	--	.96	.96	.030	.000
12...	.1	20	156	155	.21	876	18	1.1	1.1	.000	.000
19...	.2	21	128	129	.17	1327	--	.98	.99	.030	.000
25...	.2	22	148	139	.20	1055	--	.84	.97	.000	.000
JUL											
24...	.2	24	190	196	.25	698	15	1.6	1.7	.000	.000
AUG											
11...	.3	22	190	181	.25	836	13	1.5	1.6	.000	.000
SEP											
09...	.3	24	198	183	.26	936	8	1.7	1.8	.000	.010

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHATE, TOTAL (MG/L AS PO4)
OCT , 1979											
09...	.07	.00	.92	.64	.98	.34	.64	2.4	10	.130	--
NOV											
06...	.08	.09	.45	.45	.52	.00	.52	2.4	10	.130	--
DEC											
04...	.04	.03	.55	.40	.58	.15	.43	2.4	10	.130	--
JAN , 1980											
22...	.22	.11	.30	.27	.48	.12	.36	1.6	7.4	.150	--
FEB											
13...	.16	.12	.27	.29	.40	.01	.39	1.4	6.1	.080	--
MAR											
04...	.10	.10	1.1	.50	1.20	.62	.58	2.3	10	.420	--
APR											
16...	.05	.05	1.5	1.4	1.60	.10	1.5	1.9	8.4	.190	--
MAY											
06...	.07	.03	.55	.42	.61	.16	.45	.97	4.2	.160	--
21...	.05	.07	.50	.42	.54	.06	.48	1.3	5.7	.180	--
30...	.07	.07	.42	.32	.48	.10	.38	1.4	6.5	.110	--
JUN											
06...	.04	.00	.79	.38	.82	.44	.38	1.7	7.8	.080	--
12...	.00	.00	.59	.36	.59	.23	.36	1.6	7.4	.090	--
19...	.04	.00	.97	.51	1.00	.49	.51	1.9	8.7	.400	--
25...	.00	.00	1.8	.37	1.80	1.4	.37	2.6	11	.150	--
JUL											
24...	.00	.00	1.5	.87	1.50	.63	.87	3.1	13	.140	--
AUG											
11...	.00	.00	.87	.53	.87	.34	.53	2.3	10	.130	.21
SEP											
09...	.00	.01	1.3	.67	1.30	.62	.68	3.0	13	.090	.28

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1979											
09...	.40	.070	--	--	--	--	3.2	.9	15	--	--
NOV											
06...	.40	.070	--	--	--	8.4	--	--	34	170	94
DEC											
04...	.40	.090	--	--	--	7.6	--	--	16	76	98
JAN , 1980											
22...	.46	.110	--	--	--	--	6.9	.1	294	3786	--
FEB											
13...	.25	.090	--	--	--	4.3	--	--	11	74	--
MAR											
04...	1.3	.100	--	--	--	6.1	--	--	356	9612	--
APR											
16...	.58	.050	--	--	--	--	4.4	1.0	145	2733	87
MAY											
06...	.49	.050	--	--	--	--	--	--	127	2853	89
21...	.55	.070	--	--	--	4.6	--	--	187	2252	--
30...	.34	.060	--	--	--	--	--	--	46	364	--
JUN											
06...	.25	.060	--	--	--	--	--	--	30	194	--
12...	.28	.010	--	--	--	8.7	--	--	28	157	--
19...	1.2	.080	--	--	--	--	--	--	428	4438	99
25...	.46	.080	--	--	--	--	--	--	40	285	96
JUL											
24...	.43	.100	--	--	--	--	2.3	.5	27	99	97
AUG											
11...	.40	.130	.070	.080	.24	4.0	--	--	31	136	96
SEP											
09...	.28	.110	.090	.090	.27	3.4	--	--	20	94	97

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT , 1979										
09...	1315	3	0	5	0	0	50	0	0	<1
DEC										
04...	1445	--	--	--	--	--	--	--	--	--
JAN , 1980										
22...	1400	3	1	2	100	80	20	0	0	<1
MAR										
04...	1300	--	--	--	--	--	--	--	--	--
APR										
16...	1330	2	1	1	100	80	20	0	0	1
MAY										
21...	1630	2	0	2	0	0	20	0	0	1
30...	1330	2	0	2	0	0	30	0	--	<1
JUN										
06...	1115	3	0	3	0	0	30	0	--	<1
12...	1300	3	0	3	0	0	30	0	--	<1
19...	1145	2	0	3	100	80	20	0	0	1
25...	1215	3	0	3	0	0	30	0	--	<1
JUL										
24...	1100	5	1	4	100	60	40	0	--	<1
AUG										
11...	1400	4	0	4	0	0	40	1	0	1
SEP										
09...	1510	3	1	2	0	0	40	1	0	1

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)
OCT , 1979										
09...	20	10	10	0	0	<3	0	0	1	260
DEC										
04...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
22...	0	0	0	1	0	<3	11	11	0	730
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
16...	0	0	0	0	--	<3	9	6	3	4400
MAY										
21...	0	0	0	5	5	<3	11	9	2	2700
30...	0	0	0	0	--	<3	7	--	<10	1000

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)
JUN 1979										
06...	0	0	0	0	--	<3	6	--	<10	810
12...	0	0	0	0	--	<3	5	--	<10	910
19...	10	10	0	8	--	<3	23	--	<10	18000
25...	0	0	0	2	--	<3	7	--	<10	1500
JUL										
24...	20	10	10	2	--	<3	13	8	5	1000
AUG										
11...	0	0	0	3	--	<3	8	5	3	960
SEP										
09...	10	10	0	0	--	<3	8	5	3	700

DATE	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)
OCT , 1979										
09...	240	20	2	2	0	90	80	10	.1	.1
DEC										
04...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
22...	650	80	6	5	1	50	20	30	.1	.1
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
16...	4400	40	4	1	3	120	110	10	.0	.0
MAY										
21...	2700	30	4	4	0	80	70	10	.3	.1
30...	980	16	4	--	<10	40	30	6	.7	.2
JUN										
06...	760	46	3	--	<10	50	40	13	.2	.1
12...	880	27	6	6	0	60	60	5	.1	.0
19...	18000	110	4	0	10	420	420	4	.2	.2
25...	1500	38	3	0	<10	70	70	5	.0	.0
JUL										
24...	990	10	6	3	3	50	40	8	.1	.0
AUG										
11...	940	20	3	3	0	60	50	7	.8	.5
SEP										
09...	680	20	4	4	0	50	40	8	.5	.0

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1979										
09...	.0	0	0	1	0	0	0	0	0	<3
DEC										
04...	--	--	--	--	0	--	--	--	--	--
JAN , 1980										
22...	.0	0	0	0	0	0	0	0	0	4
MAR										
04...	--	--	--	--	0	--	--	--	--	--
APR										
16...	.1	0	0	0	1	1	0	30	--	<3
MAY										
21...	.2	0	0	0	0	0	0	30	20	10
30...	.5	0	0	0	0	0	0	20	--	<3
JUN										
06...	.1	0	0	0	0	0	0	20	--	<3
12...	.2	0	0	0	0	0	0	30	--	<3
19...	.0	0	0	0	0	0	0	60	--	<3
25...	.0	0	0	0	0	0	0	140	--	<3
JUL										
24...	.2	0	0	0	0	0	0	30	--	<3
AUG										
11...	.3	0	0	0	2	2	0	20	--	<3
SEP										
09...	.5	0	0	0	0	0	0	30	--	<3

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)
NOV , 1979												
06...	1130	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB , 1980												
13...	1500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG												
11...	1400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV , 1979												
06...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB , 1980												
13...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--
AUG												
11...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
OCT , 1979					
04...	1315	4.25	5.22	9.92	3.12
JAN , 1980					
22...	1400	.000	.000	.030	.000
APR					
16...	1330	.079	.079	.000	.000
JUL					
24...	1100	4.57	7.40	3.04	.750

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	NOV 6,79	MAR 4,80	MAY 6,80	MAY 21,80
TIME	1130	1300	1500	1630
TOTAL CELLS/ML	4100	820	1100	570
DIVERSITY: DIVISION	1.5	1.4	1.1	0.2
.CLASS	1.5	1.4	1.2	0.2
..ORDER	2.1	2.4	1.9	0.8
...FAMILY	2.7	2.7	3.1	2.1
....GENUS	0.0	2.8	3.5	2.6

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	--	-	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	79	2	--	-	--	-	--	-
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	--	-	13	2
....MICRACTINIUM	40	1	--	-	28	3	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	79	2	14	2	55	5	--	-
....CHODATELLA	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	55	5	--	-
....SCENEDESMUS	550	14	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	40	1	58	7	--	-	--	-
...PHACOTACEAE								
....PTEROMONAS	--	-	--	-	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	*	0	29	4	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

12510500 YAKIMA RIVER AT KIONA, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	NOV 6,79		MAR 4,80		MAY 6,80		MAY 21,80	
TIME	1130		1300		1500		1630	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE	40	1	--	-	--	-	--	-
....CYCLOTELLA	1000*	25	120	14	300*	28	64	11
....MELOSIRA	150	4	--	-	69	6	26	5
....STEPHANODISCUS	--	-	43	5	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	14	1	--	-
....COCCONEIS	--	-	--	-	--	-	--	-
....RHOICOSPHENIA	#	0	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	#	0	--	-	14	1	13	2
...DIATOMACEAE								
....DIATOMA	--	-	--	-	42	4	13	2
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	--	-	28	3	26	5
....FRAGILARIA	--	-	--	-	28	3	210*	36
....SYNEDRA	54	1	--	-	55	5	13	2
...GOMPHONEMATACEAE								
....GOMPHONEMA	54	1	--	-	14	1	--	-
...NAVICULACEAE								
....NAVICULA	220	5	190*	23	83	8	51	9
...NITZSCHIACEAE								
....NITZSCHIA	360	9	80	11	150	14	140*	25
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	14	1	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	--	-	--	-	14	1	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	#	0	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	86	11	--	-	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	220	5	--	-	--	-	--	-
....OSCILLATORIA	1000*	25	200*	25	97	9	--	-
....PHORMIDIUM	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	14	1	--	-

NOTE: * - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
- OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED, LESS THAN 1/2%

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12510500 YAKIMA RIVER AT KIONA, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	JUN 12,80	JUL 24,80	AUG 11,80	SEP 9,80
TIME	1300	1100	1400	1510
TOTAL CELLS/ML	15000	2200	10000	2900
DIVERSITY: DIVISION	1.3	1.3	1.5	1.7
.CLASS	1.3	1.3	1.5	1.7
..ORDER	1.7	2.1	2.2	2.2
...FAMILY	2.4	2.9	2.6	3.0
....GENUS	3.1	3.1	3.0	3.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	13	1	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	--	-	130	4
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	--	-	--	-
....MICRACTINIUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	*	0	52	2	100	1	--	-
....CHODATELLA	--	-	26	1	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	310	11
....OOCYSTIS	--	-	13	1	170	2	--	-
....SELENASTRUM	--	-	26	1	*	0	16	1
....TETRAEDRON	--	-	--	-	--	-	16	1
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	270	3	--	-
....CRUCIGENIA	200	1	100	5	--	-	--	-
....SCENEDESMUS	300	2	210	9	1800#	17	560#	19
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	*	0	39	2	130	1	130	4
...PHACOTACEAE								
....PTEROMONAS	--	-	--	-	*	0	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE	--	-	--	-	--	-	--	-
....CYCLOTELLA	1800	12	180	8	1300	12	720#	25
....MELOSIRA	100	1	--	-	1100	10	170	6
....STEPHANODISCUS	2300#	16	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	31	1
....COCCONEIS	--	-	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	13	1	--	-	16	1
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	100	1	--	-	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	200	1	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-	--	-
....SYNEDRA	200	1	13	1	67	1	16	1
...GOMPHONEMATACEAE								
....GOMPHONEMA	100	1	13	1	--	-	--	-
...NAVICULACEAE								
....NAVICULA	300	2	65	3	130	1	47	2
...NITZSCHIACEAE								
....NITZSCHIA	1200	8	77	4	130	1	160	5
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	*	0	--	-	*	0	78	3
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	31	1

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

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12510500 YAKIMA RIVER AT KIONA, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	JUN 12,80		JUL 24,80		AUG 11,80		SEP 9,80	
TIME	1300		1100		1400		1510	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	100	1	400#	18	3000#	29	31	1
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	1800	12	460#	21	--	-	130	4
....APHANIZOMENON	--	-	--	-	1300	13	--	-
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	--	-
....OSCILLATORIA	1200	8	490#	22	740	7	310	11
....PHORMIDIUM	4500#	31	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	*	0	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
AM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	11.0	3.5	3.5	.5	5.0	9.5	11.5	16.5	21.0	21.0	16.5
2	17.5	9.0	4.0	4.0	1.0	6.5	9.0	13.5	16.0	20.0	21.5	17.5
3	17.0	9.5	4.5	4.0	1.0	7.0	9.0	13.5	16.0	20.0	21.0	17.0
4	17.0	9.0	5.5	4.0	1.0	7.5	9.5	13.5	16.0	19.5	21.0	16.0
5	17.0	9.5	6.0	4.0	2.0	5.5	9.5	13.0	16.5	20.0	20.0	16.5
6	17.0	9.0	6.0	4.0	2.0	5.5	10.0	15.5	16.0	20.0	20.0	17.5
7	17.0	9.0	6.0	2.0	2.5	5.5	10.0	13.0	16.0	19.0	20.0	18.0
8	17.0	9.0	5.0	.0	3.0	5.5	10.0	13.0	18.0	18.5	20.0	18.0
9	17.5	9.0	6.0	.0	3.0	5.5	10.0	13.5	18.0	20.0	20.5	17.5
10	17.0	9.0	5.5	.0	3.0	7.0	10.0	13.5	18.0	20.0	21.0	18.5
11	17.0	8.0	5.0	.0	3.0	7.0	11.0	13.0	18.0	20.0	20.5	18.0
12	16.0	8.0	5.0	2.0	3.0	6.0	11.0	13.0	18.0	20.0	21.0	18.5
13	15.0	7.0	5.0	2.0	3.5	6.5	13.0	14.0	18.0	20.0	21.0	18.0
14	14.5	7.0	5.0	2.0	---	6.5	13.0	15.0	17.5	20.0	21.0	---
15	13.0	7.0	4.0	2.5	---	7.0	12.0	15.5	16.5	20.5	20.0	---
16	12.0	7.0	4.0	2.5	3.0	7.0	13.0	15.0	16.0	21.0	20.5	---
17	12.0	7.0	4.0	2.5	3.5	6.5	12.0	15.0	---	21.5	19.0	---
18	11.0	7.0	4.0	2.0	4.0	8.0	12.0	15.5	19.0	22.0	18.0	18.0
19	10.5	7.0	4.5	1.5	5.0	8.0	11.5	15.5	20.5	23.0	19.5	16.0
20	10.0	6.0	5.0	1.0	5.5	8.5	11.0	17.0	19.0	24.0	19.5	15.0
21	11.0	6.0	5.5	2.0	5.5	8.5	11.0	16.0	20.0	22.0	20.0	15.0
22	---	---	5.0	1.5	5.0	9.0	11.0	15.0	20.0	22.5	21.0	14.5
23	---	---	4.0	2.0	5.5	9.0	11.5	16.0	21.0	22.0	20.0	14.5
24	---	4.5	3.0	1.5	6.0	9.0	12.0	15.0	20.0	22.5	19.5	---
25	12.5	4.5	3.0	2.0	6.0	9.0	12.0	14.0	19.0	22.0	19.0	---
26	12.0	4.0	3.0	1.0	6.5	10.0	13.0	13.0	18.0	22.0	19.5	---
27	12.0	3.5	3.0	.0	6.5	9.0	13.5	14.0	16.5	22.0	18.5	---
28	12.5	3.0	3.0	.0	6.5	9.0	13.5	15.0	18.0	22.0	17.5	18.0
29	12.0	3.0	3.5	---	7.0	8.5	12.5	17.0	18.0	22.0	17.0	15.5
30	12.0	3.5	3.5	---	---	9.0	12.0	16.0	21.0	22.0	16.5	16.0
31	11.0	---	3.5	---	---	9.0	---	17.0	---	21.5	16.0	---
MEAN	14.0	7.0	4.5	2.0	4.0	7.5	11.5	14.5	18.0	21.0	19.5	17.0

WTR YR 1980 MEAN 11.5 MAX 24.0 MIN .0

12510500 YAKIMA RIVER AT KIONA, WA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	497	14	19	1920	56	290	1580	27	115
2	497	15	20	1910	50	258	1630	36	158
3	497	13	17	1890	54	276	1640	34	151
4	497	17	23	1870	42	212	1760	14	67
5	532	16	23	1880	51	259	2210	32	191
6	546	16	24	1920	43	223	2490	39	262
7	574	20	31	2100	49	278	2770	37	277
8	588	20	32	2080	41	230	2910	26	204
9	580	16	25	2030	46	252	2950	36	287
10	548	23	34	1960	47	249	2910	30	236
11	548	22	33	1910	37	191	3040	41	337
12	562	29	44	1870	49	247	3310	39	349
13	584	25	39	1830	41	203	3370	63	573
14	597	34	55	1800	42	204	3360	173	1570
15	673	24	44	1750	36	170	3180	173	1490
16	874	26	61	1810	42	205	3790	240	2460
17	890	26	62	1810	52	254	6340	299	5120
18	880	42	100	1770	46	220	6180	230	3840
19	1130	24	73	1800	53	258	7240	311	6080
20	1170	31	98	1790	39	188	8250	542	12100
21	1250	29	98	1720	40	186	8190	430	9510
22	1480	26	104	1700	40	184	7830	259	5480
23	1600	27	117	1720	38	176	7430	231	4630
24	1500	27	109	1730	38	177	7020	168	3180
25	1540	51	212	1720	41	190	6580	114	2030
26	1780	71	341	1730	33	154	6090	97	1590
27	1760	71	337	1710	32	148	5650	87	1330
28	1750	62	293	1690	36	164	5260	48	682
29	1820	79	388	1610	18	78	4960	41	549
30	1950	68	358	1560	27	114	4660	40	503
31	1950	68	358	---	---	---	4370	42	496
TOTAL	31644	---	3572	54590	---	6238	138950	---	65847

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	4070	29	319	1450	13	51	11500	1090	33800
2	3860	27	281	1550	11	46	10600	675	19300
3	3670	27	268	1800	17	83	10100	436	11900
4	3530	27	257	2600	24	168	10000	347	9370
5	3360	16	145	2840	34	261	10000	320	8640
6	3210	38	329	2860	28	216	9710	220	5770
7	2850	42	323	2880	36	280	8560	129	2980
8	2600	36	253	2830	36	275	7860	132	2800
9	2200	36	214	2730	23	170	7340	178	3530
10	2100	36	204	2660	17	122	7280	161	3160
11	2100	52	295	2610	40	282	7050	159	3030
12	2350	112	711	2560	29	200	6740	122	2220
13	3750	52	526	2510	18	122	6400	120	2070
14	4800	250	3240	2450	40	265	6290	110	1870
15	5020	258	3500	2360	80	510	6030	98	1600
16	4570	200	2470	2210	90	537	5680	86	1320
17	4370	91	1070	2170	38	223	5320	86	1240
18	4110	61	677	2430	67	440	5090	79	1090
19	3640	35	344	2820	97	739	4690	76	962
20	3180	19	163	3830	348	3600	4580	69	853
21	2960	16	128	3760	262	2660	4630	76	950
22	2800	16	121	3370	142	1290	4730	70	894
23	2700	13	95	3130	95	803	4880	87	1150
24	2550	12	83	3050	57	469	5080	44	604
25	2350	11	70	3050	84	692	4850	53	694
26	2200	25	148	3390	454	4160	4520	54	659
27	2050	12	66	5140	1030	14300	4470	58	700
28	1800	23	112	7760	1160	24300	4480	58	702
29	1700	20	92	10300	1350	37500	4390	74	877
30	1550	20	84	---	---	---	4360	64	753
31	1500	15	61	---	---	---	4400	50	594
TOTAL	93500	---	16649	93100	---	94764	201610	---	126282

12510500 YAKIMA RIVER AT KIONA, WA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	4380	60	709	12500	312	10500	3110	51	428
2	4140	33	369	10600	250	7150	3330	38	342
3	3950	36	384	9900	180	4810	3350	26	235
4	3710	32	321	9410	130	3300	3090	71	592
5	3670	54	535	8530	98	2260	2790	40	301
6	3800	55	564	8240	122	2710	2430	32	210
7	4250	57	654	8110	114	2500	2210	36	215
8	4440	44	527	7270	92	1810	2080	30	168
9	4290	44	510	5840	64	1010	2150	37	215
10	4250	48	551	5000	54	729	2200	32	197
11	4720	61	777	4560	43	529	2270	27	165
12	4970	60	805	4300	47	546	2100	36	204
13	5060	82	1120	3960	54	574	2090	35	198
14	5490	118	1750	3770	50	509	2400	32	207
15	6120	133	2200	3770	78	794	2750	87	646
16	6980	148	2790	3660	44	435	3010	50	406
17	7170	173	3350	3240	19	166	3220	39	339
18	7400	197	3940	3520	53	504	3880	50	524
19	7590	174	3570	4260	79	909	3840	150	1560
20	8140	204	4480	4890	179	2360	3570	150	1450
21	9460	331	8450	4580	217	2680	3310	180	1610
22	10600	391	11200	4460	139	1670	3200	290	2510
23	10900	324	9540	4070	100	1100	3140	230	1950
24	10800	308	8980	3550	63	604	2930	50	396
25	11100	303	9080	3140	53	449	2660	40	287
26	11200	307	9280	3040	52	427	2940	52	413
27	10700	217	6270	3290	52	462	3650	6	59
28	10300	230	6400	3400	52	477	3290	16	142
29	11000	228	6770	3350	48	434	3040	51	419
30	12400	410	13700	3030	41	335	2850	44	339
31	---	---	---	2910	48	377	---	---	---
TOTAL	212900	---	119656	164130	---	53120	86960	---	16727

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	2660	12	86	1340	26	94	2070	46	257
2	2150	23	134	1430	28	108	2190	50	296
3	1760	34	162	1450	28	110	2310	48	299
4	1640	22	97	1470	32	127	2290	44	272
5	1960	6	32	1560	28	118	2080	29	163
6	2110	4	23	1560	30	126	1910	28	144
7	1970	3	16	1490	29	117	1810	33	161
8	1750	33	156	1510	28	114	1800	23	112
9	1600	32	138	1530	29	120	1770	25	119
10	1680	33	150	1560	38	160	1620	32	140
11	1860	38	191	1630	40	176	1580	32	137
12	1950	144	758	1640	46	204	1600	39	168
13	1910	102	526	1580	43	183	1690	20	91
14	1930	56	292	1560	33	139	1860	20	100
15	1850	46	230	1580	40	171	2240	20	121
16	1700	30	138	1540	41	170	2300	20	124
17	1720	38	176	1590	40	172	2120	20	114
18	1800	32	156	1710	45	208	2060	21	117
19	1690	27	123	1910	52	268	2010	22	119
20	1710	43	199	1920	35	181	2070	28	156
21	1850	64	320	1790	36	174	2110	25	142
22	1710	55	254	1670	34	153	2130	29	167
23	1510	27	110	1680	32	145	2150	23	134
24	1380	23	86	1780	31	149	2180	25	147
25	1480	27	108	1770	32	153	2090	25	141
26	1420	29	111	1730	28	131	2010	25	136
27	1350	26	95	1710	32	148	2000	25	135
28	1430	26	100	1670	28	126	2070	25	140
29	1470	25	99	1690	33	151	2050	20	111
30	1380	30	112	1760	40	190	1980	24	128
31	1290	39	136	1910	57	294	---	---	---
TOTAL	53670	---	5314	50720	---	4880	60150	---	4591
YEAR	1241924		517640						

12510500 YAKIMA RIVER AT KIONA, WA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY) OCTOBER 1980

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER	
1	1920	23	119
2	1870	24	121
3	1850	28	140
4	1790	34	164
5	1700	22	101
6	1640	20	89
7	1550	16	67
8	1480	14	56
9	1390	12	45
10	1480	12	48
11	1530	14	58
12	1620	18	79
13	1710	16	74
14	1890	18	92
15	2020	20	109
16	2550	22	151
17	2570	24	167
18	2280	26	160
19	2110	23	131
20	2040	16	88
21	2200	25	148
22	2700	27	197
23	2610	18	127
24	2500	16	108
25	2450	26	172
26	2420	18	118
27	2370	18	115
28	2330	14	88
29	2290	12	74
30	2250	19	115
31	2210	17	101
TOTAL	63320	---	3422

DATE	TIME	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM
OCT , 1979										
09...	1315	15	--	--	--	--	--	--	--	--
NOV										
06...	1130	34	--	--	--	--	--	--	94	--
DEC										
04...	1445	16	--	--	--	--	--	--	98	--
JAN , 1980										
22...	1400	294	21	32	46	58	63	100	--	--
FEB										
13...	1500	11	--	--	--	--	--	--	--	--
MAR										
04...	1300	356	--	--	--	--	--	--	--	--
APR										
16...	1330	145	--	--	--	--	--	--	87	--
MAY										
06...	1500	127	--	--	--	--	--	--	89	--
21...	1630	187	--	--	--	--	--	--	--	--
30...	1330	46	--	--	--	--	--	--	--	--
JUN										
06...	1115	30	--	--	--	--	--	--	--	--
12...	1300	28	--	--	--	--	--	--	--	--
19...	1145	428	50	76	89	93	96	--	99	100
25...	1215	40	--	--	--	--	--	--	96	--
JUL										
24...	1100	27	--	--	--	--	--	--	97	--
AUG										
11...	1400	31	--	--	--	--	--	--	96	--
SEP										
09...	1510	20	--	--	--	--	--	--	97	--

12512550 PROVIDENCE COULEE NEAR CUNNINGHAM, WA

LOCATION.--Lat 46°48'11", long 118°48'55", in SE¼NE¼ sec.8, T.15 N., R.32 E., Adams County, Hydrologic Unit 17020016, on right bank 0.5 mi (0.8 km) downstream from Gillis Road, 0.8 mi (1.3 km) upstream from State Highway 26, and 1.4 mi (2.3 km) southwest of Cunningham.

DRAINAGE AREA.--52.1 mi² (134.9 km²).

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,115 ft (340 m), from topographic map.

REMARKS.--Records fair. No known diversions. An undetermined amount of ground water withdrawals for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 711 ft³/s (20.1 m³/s) Feb. 9, 1979, gage height, 5.40 ft (1.646 m); no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 646 ft³/s (18.3 m³/s) Feb. 18, gage height, 4.84 ft (1.475 m); no flow during most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.36	.01	.05
2	.00	.00	.00	.00	.00	.00	.00	.00	.70	.40	.02	.01
3	.00	.00	.00	.00	13	.00	.00	.00	.30	.40	.04	.00
4	.00	.00	.00	.00	21	.00	.00	.00	.12	.54	.05	.00
5	.00	.00	.00	.00	12	.00	.00	.00	.00	.54	.01	.00
6	.00	.00	.00	.00	42	.00	.00	.00	.00	.68	.00	.00
7	.00	.00	.00	.00	14	.00	.00	.00	.00	.61	.00	.00
8	.00	.00	.00	.00	5.9	.00	.00	.00	.00	.33	.00	.00
9	.00	.00	.00	.00	1.0	.00	.00	.00	.00	.08	.00	.00
10	.00	.00	.00	.00	.75	.00	.00	.00	.00	.04	.00	.00
11	.00	.00	.00	.00	.60	.00	.00	.00	.00	.03	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.47	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.73	.26	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.36	.20	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.15	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.47	.10	.00	.00
17	.00	.00	.00	.00	.32	.00	.00	.00	.05	.05	.00	.00
18	.00	.00	.00	.00	228	.00	.00	.00	1.4	.30	.00	.00
19	.00	.00	.00	.00	37	.00	.00	.00	.12	.25	.01	.00
20	.00	.00	.00	.00	31	.00	.00	.00	.26	.25	.03	.00
21	.00	.00	.00	.00	2.8	.00	.00	.00	.54	.20	.08	.00
22	.00	.00	.00	.00	.60	.00	.00	.00	.22	.20	.12	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.54	.15	.12	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.47	.10	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.54	.10	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	4.7	.47	.05	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.21	.36	.05	.02	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.40	.05	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.12	.02	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.36	.01	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.02	.01	---
TOTAL	.00	.00	.00	.00	410.05	.00	.00	4.91	9.81	6.99	.52	.06
MEAN	.000	.000	.000	.000	14.1	.000	.000	.16	.33	.23	.017	.002
MAX	.00	.00	.00	.00	228	.00	.00	4.7	1.4	.68	.12	.05
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
AC-FT	.00	.00	.00	.00	813	.00	.00	9.7	19	14	1.0	.1

CAL YR 1979 TOTAL 578.44 MEAN 1.58 MAX 259 MIN .00 AC-FT 1150
WTR YR 1980 TOTAL 432.34 MEAN 1.18 MAX 228 MIN .00 AC-FT 858

12513000 ESQUATZEL COULEE AT CONNELL, WA

LOCATION.--Lat 46°39'31", long 118°52'03", in SE¼NW¼ sec.36, T.14 N., R.31 E., Franklin County, Hydrologic Unit 17020016, on right bank 500 ft (152 m) upstream from outlet of local sewage treatment plant, at Connell, 3.0 mi (4.8 km) downstream from left bank tributary, and 8.4 mi (13.5 km) downstream from Hatton Coulee.

DRAINAGE AREA.--234 mi^2 (606 km^2).

PERIOD OF RECORD.--January 1953 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 820.68 ft (250.143 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 7, 1959, at site 0.3 mi (0.5 km) upstream at different datum, and Aug. 7, 1959, to July 8, 1967, at site 900 ft (274 m) downstream at present datum.

REMARKS.--Records fair except for period of no gage-height record April 22 to July 29 which is poor. No diversion. Published flows August 1959 to September 1964 include effluent from sewage treatment plant 500 ft (152 m) downstream; records adjusted to exclude effluent October 1964 to June 1967.

AVERAGE DISCHARGE.--28 years, 1.36 ft^3/s (0.0385 m^3/s), 985 acre-ft/yr (1.21 hm^3/yr), adjusted for effluent from sewage treatment plant 1959-64.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,560 ft^3/s (157 m^3/s) Feb. 21, 1956, gage height, 12.68 ft (3.865 m), site and datum then in use; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,200 ft^3/s (34.0 m^3/s) Feb. 18, gage height, 10.46 ft (3.188 m) from outside high-water mark; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	2.0	2.0	.70	1.9
2	.00	.00	.00	.00	.00	.00	.00	.00	2.3	2.0	.00	2.3
3	.00	.00	.00	.00	1.2	.00	.00	.00	2.0	2.0	.00	2.3
4	.00	.00	.00	.00	104	.00	.00	.00	2.0	2.0	.00	1.2
5	.00	.00	.00	.00	56	.00	.00	.00	2.0	2.0	.30	2.3
6	.00	.00	.00	.00	113	.00	.00	.00	2.0	2.0	.20	.05
7	.00	.00	.00	.00	106	.00	.00	.00	2.0	2.0	.05	1.6
8	.00	.00	.00	.00	24	.00	.00	.00	2.0	2.0	.00	2.4
9	.00	.00	.00	.00	7.0	.00	.00	.00	2.0	2.0	.00	3.6
10	.00	.00	.00	.00	2.0	.00	.00	.00	2.0	2.0	.60	2.6
11	.00	.00	.00	.00	.05	.00	.00	.00	1.5	1.5	1.5	5.0
12	.00	.00	.00	.00	.00	.00	.00	.00	1.5	1.5	.90	5.0
13	.00	.00	.00	.00	.00	.00	.00	.00	1.5	1.5	1.9	5.8
14	.00	.00	.00	.00	.00	.00	.00	.00	1.5	1.5	1.5	4.4
15	.00	.00	.00	.00	.00	.00	.00	.00	1.5	1.5	.80	3.3
16	.00	.00	.00	.00	.00	.00	.00	.00	1.5	1.5	1.5	.16
17	.00	.00	.00	.00	.00	.00	.00	.00	1.5	1.5	1.0	.00
18	.00	.00	.00	.00	616	.00	.00	.00	1.5	1.5	.50	.00
19	.00	.00	.00	.00	250	.00	.00	.00	1.5	1.5	.40	.00
20	.00	.00	.00	.00	183	.00	.00	.00	1.5	1.5	.30	.00
21	.00	.00	.00	.00	19	.00	.00	.00	1.5	1.5	.20	.00
22	.00	.00	.00	.00	3.6	.00	.00	.00	1.5	1.5	.20	.00
23	.00	.00	.00	.00	.20	.00	.00	.00	1.5	1.5	2.3	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	1.5	1.5	2.3	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	1.5	1.5	2.8	.00
26	.00	.00	.00	.00	.00	.00	.00	5.0	2.0	2.0	1.2	.00
27	.00	.00	.00	.00	.00	.00	.00	3.0	2.0	2.0	.90	.00
28	.00	.00	.00	.00	.00	.00	.00	2.0	2.0	2.0	2.6	.00
29	.00	.00	.00	.00	.00	.00	.00	2.0	2.0	2.0	3.1	.00
30	.00	.00	.00	.00	---	.00	.00	2.0	2.0	1.9	3.6	.00
31	.00	---	.00	.00	---	.00	---	2.0	---	1.2	1.2	---
TOTAL	.00	.00	.00	.00	1485.05	.00	.00	16.00	52.8	53.6	32.63	43.91
MEAN	.000	.000	.000	.000	51.2	.000	.000	.52	1.76	1.73	1.05	1.46
MAX	.00	.00	.00	.00	616	.00	.00	5.0	2.3	2.0	3.6	5.8
MIN	.00	.00	.00	.00	.00	.00	.00	.00	1.5	1.2	.00	.00
AC-FT	.00	.00	.00	.00	2950	.00	.00	32	105	106	65	87

CAL YR 1979 TOTAL 1746.73 MEAN 4.79 MAX 726 MIN .00 AC-FT 3460
WTR YR 1980 TOTAL 1683.99 MEAN 4.60 MAX 616 MIN .00 AC-FT 3340

12514000 COLUMBIA RIVER AT PASCO, WA

LOCATION.--Lat 46°13'40", long 119°08'03", in NW¼NW¼ sec.36, T.9 N., R.29 E., Franklin County, Hydrologic Unit 17020016, in bridge pier on U.S. Highway 12 between Pasco and Kennewick, 5.2 mi (8.4 km) downstream from Yakima River, 5.8 mi (9.3 km) upstream from Snake River, and at mile 330.0 (531.0 km).

DRAINAGE AREA.--104,000 mi^2 (269,000 km^2), approximately.

PERIOD OF RECORD.--October 1963 to September 1966 (discharge); October 1979 to current year (elevations only). Fragmentary records of gage height for other years in files of Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Gage is within the pool formed by McNary Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 346.09 ft (105.488 m) June 17, 1964; minimum elevation, 336.61 ft (102.599 m) Oct. 11, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 341.77 ft (104.171 m) June 19; minimum elevation, 336.61 ft (102.599 m) Oct. 11.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	338.70	339.45	339.05	339.13	338.70	339.68	338.53	340.77	340.66	338.69	339.10	338.45
2	339.47	339.20	339.22	338.57	338.34	339.80	338.83	340.70	341.10	338.72	338.84	338.19
3	339.29	339.24	338.66	338.81	338.50	339.49	338.81	340.62	341.01	339.24	339.15	338.08
4	339.21	338.99	338.79	338.89	338.12	339.64	339.37	340.32	340.51	340.43	338.87	337.95
5	338.87	338.48	339.39	339.43	338.76	339.10	338.98	340.13	340.52	340.45	338.67	338.39
6	338.86	338.62	339.54	339.49	338.57	339.29	338.50	340.80	341.01	340.37	338.66	338.54
7	338.38	338.98	339.39	339.49	338.51	339.45	339.28	341.01	340.98	340.21	338.51	339.05
8	338.36	339.20	339.30	339.95	338.75	339.11	339.46	340.89	341.06	339.98	338.24	338.71
9	338.36	339.07	339.04	339.48	338.99	339.32	339.10	340.85	341.05	339.22	338.54	338.79
10	337.65	339.27	---	339.34	339.27	339.20	338.63	340.71	341.05	338.90	338.42	338.73
11	337.39	339.46	---	338.25	339.07	339.45	338.12	340.32	341.09	338.90	337.96	338.81
12	337.30	339.07	---	338.32	339.47	339.61	337.68	340.00	341.27	338.75	338.46	338.64
13	338.94	339.10	---	339.53	339.43	339.51	338.08	340.65	341.03	339.53	338.25	338.97
14	338.79	339.33	---	339.02	339.41	339.30	338.53	340.69	340.96	339.90	339.01	339.04
15	338.13	338.75	---	339.06	339.89	339.08	338.98	340.77	340.90	339.05	338.42	339.11
16	338.17	339.08	---	338.77	339.50	339.67	339.45	340.66	341.02	338.05	338.91	339.60
17	338.53	339.43	---	338.49	339.34	339.32	338.90	340.47	341.38	338.78	339.29	339.20
18	339.09	338.73	---	338.42	339.40	339.41	338.68	338.75	341.33	339.41	338.97	339.20
19	339.36	339.03	---	339.20	339.51	338.84	339.13	338.06	341.28	339.69	338.61	338.82
20	339.15	338.85	---	339.32	339.55	338.66	339.41	339.03	340.69	339.78	337.65	339.27
21	339.12	339.21	339.36	339.12	339.48	337.99	339.47	339.77	341.26	339.89	337.67	339.46
22	339.03	339.34	339.54	339.35	339.24	338.68	339.01	340.59	340.95	339.45	338.29	339.29
23	339.12	339.29	339.68	338.53	339.21	338.97	338.29	341.05	340.59	339.68	338.35	339.63
24	338.76	339.55	339.33	338.21	339.16	338.99	338.37	340.71	339.98	339.36	338.64	339.53
25	338.86	339.44	339.38	338.25	339.23	338.94	337.85	340.31	339.45	339.82	339.26	339.72
26	338.84	339.39	339.26	338.56	339.62	338.38	338.45	340.42	339.36	339.83	339.64	339.65
27	339.02	339.57	338.53	338.37	339.53	338.67	338.33	340.76	339.60	339.55	339.66	339.50
28	339.35	339.56	338.69	338.77	339.68	338.13	338.26	340.73	339.58	339.19	339.67	339.23
29	338.57	339.19	338.96	338.79	339.86	338.57	338.85	340.79	338.99	339.23	339.42	338.90
30	338.26	339.06	338.57	338.29	---	338.06	339.88	340.34	338.77	339.14	339.13	338.37
31	339.18	---	338.85	338.40	---	337.91	---	340.24	---	339.13	338.84	---
MEAN	338.71	339.16	---	338.86	339.18	339.04	338.77	340.38	340.61	339.43	338.75	338.96
MAX	339.47	339.57	---	339.95	339.89	339.80	339.88	341.05	341.38	340.45	339.67	339.72
MIN	337.30	338.48	---	338.21	338.12	337.91	337.68	338.06	338.77	338.05	337.65	337.95

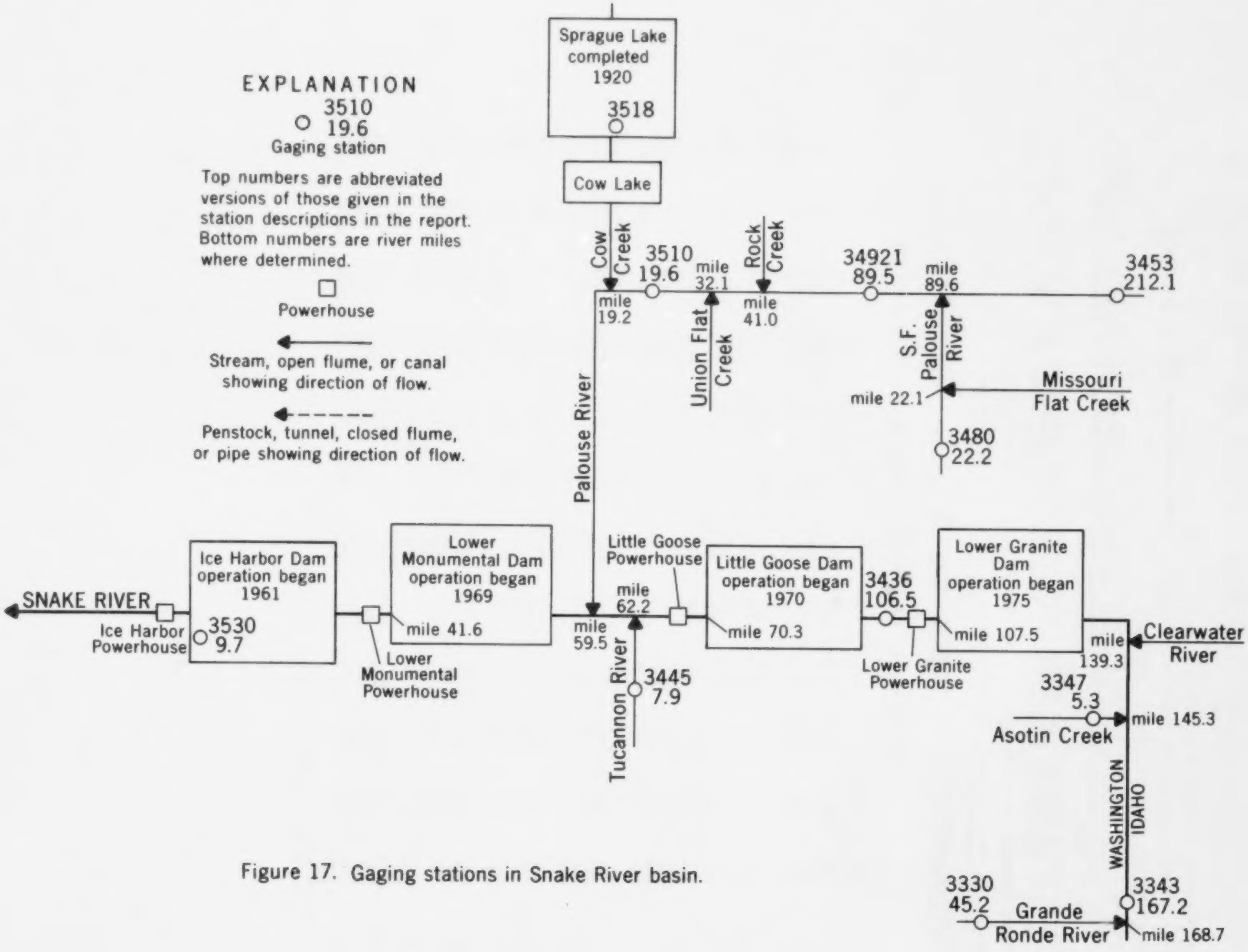
EXPLANATION
3510
19.6
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Sprague Lake completed 1920
3518
Cow Lake
Cow Creek
mile 19.2
3510 19.6
mile 32.1
Union Flat Creek
Rock Creek
mile 41.0
34921 89.5
mile 89.6
S.F. Palouse River
mile 22.1
Missouri Flat Creek
3480 22.2
3453 212.1
Palouse River
SNAKE RIVER
Ice Harbor Powerhouse
Ice Harbor Dam operation began 1961
3530 9.7
Lower Monumental Powerhouse
Lower Monumental Dam operation began 1969
mile 41.6
mile 59.5
mile 62.2
Tucannon River
3445 7.9
Little Goose Powerhouse
Little Goose Dam operation began 1970
mile 70.3
3436 106.5
Lower Granite Powerhouse
Lower Granite Dam operation began 1975
mile 107.5
mile 139.3
Clearwater River
3347 5.3
Asotin Creek
mile 145.3
WASHINGTON
IDAHO
3343 167.2
mile 168.7
3330 45.2
Grande Ronde River

Figure 17. Gaging stations in Snake River basin.

13333000 GRANDE RONDE RIVER AT TROY, OR

LOCATION.--Lat 45°56'47", long 117°26'54", in NE¼NW¼ sec.4, T.5 N., R.43 E., Wallowa County, Hydrologic Unit 17060106, on left bank 500 ft (152 m) downstream from bridge at Troy, 600 ft (183 m) downstream from Wenaha River, and at mile 45.2 (72.7 km).

DRAINAGE AREA.--3,275 mi^2 (8,482 km^2).

PERIOD OF RECORD.--August 1944 to current year. Monthly discharge only August 1944, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1946(M), 1948-50.

GAGE.--Water-stage recorder. Datum of gage is 1,585.98 ft (483.407 m) National Geodetic Vertical Datum of 1929. Aug. 17, 1944, to Sept. 30, 1949, nonrecording gage at site 500 ft (152 m) upstream at datum 10.85 ft (3.307 m) lower. Oct. 1, 1949, to Sept. 5, 1963, water-stage recorder at site 500 ft (152 m) upstream at datum 1.15 ft (0.351 m) higher.

REMARKS.--Records excellent. Flow slightly regulated by Wallowa Lake (see station 13326000) and small reservoirs. Diversions for irrigation above station, chiefly in vicinity of La Grande, Enterprise, and Wallowa; one transbasin diversion from Big Sheep Creek and tributaries in Imnaha River basin for irrigation in Wallowa Valley.

AVERAGE DISCHARGE.--36 years, 3,107 ft^3/s (87.99 m^3/s), 2,251,000 acre-ft/yr (2.78 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,200 ft^3/s (1,200 m^3/s) Dec. 23, 1964, gage height, 11.25 ft (3.429 m); minimum, 344 ft^3/s (9.74 m^3/s) Aug. 19-21, 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 9,000 ft^3/s (255 m^3/s) and maximum discharge, 9,040 ft^3/s (256 m^3/s) Apr. 29, gage height, 6.22 ft (1.896 m); minimum, 499 ft^3/s (14.1 m^3/s) Oct. 4-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	540	810	760	929	1200	4180	2290	7150	5150	4170	822	674
2	540	784	784	943	1300	3960	2250	7300	5580	4260	822	686
3	519	771	902	929	1350	3920	2190	7260	5410	4320	810	698
4	509	784	1160	916	1390	4470	2140	7420	5190	4470	797	686
5	509	784	1490	1130	1310	4870	2210	7650	5060	4170	771	662
6	509	771	1310	1490	1230	4650	2560	8540	5120	4000	759	639
7	530	771	1260	1150	1230	4110	2700	8330	5090	3940	747	628
8	540	759	1210	1040	1190	3770	2630	7530	4990	3800	734	617
9	551	747	1160	1070	1160	3470	2790	7420	5150	3860	698	628
10	551	734	1340	1130	1120	3240	3320	6960	5350	3880	674	594
11	540	722	1290	1010	1100	3290	3420	6450	5650	3580	674	698
12	530	698	1160	1120	1070	3160	3550	6090	6020	3260	686	710
13	540	686	1100	2720	1070	3040	3940	5820	6200	3010	674	875
14	540	686	1040	3660	1040	3010	4770	5720	6240	2790	651	1260
15	572	674	1030	4410	1010	3240	5450	5780	6520	2680	639	1230
16	605	686	1070	3500	1040	3060	5550	5680	6340	2400	628	1090
17	628	822	1070	3140	1700	2890	5650	5410	6490	2210	651	985
18	628	971	1190	2700	3150	2790	6240	5280	6930	2060	686	957
19	849	889	1230	2120	4110	2630	6740	5350	7000	1900	810	985
20	943	810	1210	1750	4340	2560	7340	5610	6700	1670	797	1000
21	835	710	1180	1730	3740	2720	8090	6130	6670	1560	784	1070
22	835	686	1180	1630	3240	2840	8010	7150	6560	1470	771	1010
23	862	797	1100	1510	2970	2960	7930	6490	6340	1460	759	971
24	849	784	985	1340	2750	3010	7970	5680	5890	1340	759	957
25	889	784	1040	1340	2720	2890	7380	5250	5410	1240	734	916
26	1040	771	1030	1180	3360	2720	7000	5450	5220	1130	734	902
27	985	759	985	1010	4310	2680	6960	5280	5030	1040	710	889
28	916	686	902	820	4900	2540	7260	5220	4530	1000	698	849
29	889	580	835	800	4590	2420	8620	5250	4350	943	686	822
30	849	600	797	790	---	2420	8010	5150	4410	875	674	810
31	835	---	797	900	---	2360	---	5120	---	835	674	---
TOTAL	21457	22516	33597	49907	64690	99870	154960	194920	170590	79323	22513	25498
MEAN	692	751	1084	1610	2231	3222	5165	6288	5686	2559	726	850
MAX	1040	971	1490	4410	4900	4870	8620	8540	7000	4470	822	1260
MIN	509	580	760	790	1010	2360	2140	5120	4350	835	628	594
AC-FT	42560	44660	66640	98990	128300	198100	307400	386600	338400	157300	44650	50580

CAL YR 1979 TOTAL 1033989 MEAN 2833 MAX 15500 MIN 450 AC-FT 2051000
WTR YR 1980 TOTAL 939841 MEAN 2568 MAX 8620 MIN 509 AC-FT 1864000

13334300 SNAKE RIVER NEAR ANATONE, WA

LOCATION.--Lat 46°05'50", long 116°58'36", in SE¼SE¼NE¼ sec.12, T.7 N., R.46 E., Asotin County, Hydrologic Unit 17060103, on left bank 1.2 mi (1.9 km) downstream from Grande Ronde River, 7.8 mi (12.6 km) east of Anatone, 22 mi (35.4 km) south of Clarkston, and at mile 167.2 (269.0 km).

DRAINAGE AREA.--92,960 mi^2 (241,000 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1958 to current year.

REVISED RECORDS.--WDR ID-76-1: 1974 and 1975.

GAGE.--Water-stage recorder. Datum of gage is 806.78 ft (245.907 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diversions above station for irrigation of about 4,090,000 acres (1,660 hm^2) of which about 750,000 acres (304 hm^2) are by withdrawal from ground water. Flow regulated by many reservoirs above station with a total usable capacity of more than 10,000,000 acre-feet (12,300 hm^3), the most effective of which is Brownlee Reservoir 106.3 mi (171.0 km) upstream (see sta 13289700). Diurnal fluctuations caused by Hells Canyon powerplant.

AVERAGE DISCHARGE.--22 years, 35,780 ft^3/s (1,013 m^3/s), 25,920,000 acre-ft/yr (31,960 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 195,000 ft^3/s (5,520 m^3/s), revised, June 18, 1974, gage height, 24.45 ft (7.452 m); minimum, 6,010 ft^3/s (170 m^3/s) Sept. 2, 1958, gage height, 1.29 ft (0.393 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 92,400 ft^3/s (2,617 m^3/s) June 12; minimum, 13,000 ft^3/s (368 m^3/s) Sept. 9, gage height, 3.50 ft (1.067 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14600	18300	20500	16800	24700	24000	27700	72400	81300	45200	22100	13500
2	17200	20000	16300	20400	17900	20300	19100	71100	83400	42800	19800	17100
3	17100	19000	18000	24600	19100	21600	20800	71700	84500	43200	18400	16300
4	13700	16400	18100	20400	22900	25000	19500	75800	84000	46800	16900	14400
5	15000	16200	20400	17800	22900	26600	19600	80300	81700	47500	16900	17400
6	14900	17900	20600	16800	23500	26200	17200	85000	85300	45500	16600	17500
7	13300	17000	20700	21000	27000	26000	20300	79300	84000	44200	17000	18300
8	13300	17000	18200	23300	21600	27800	22400	73800	80900	40800	15800	15300
9	13300	18200	16400	23700	19900	27700	24700	77100	81700	37800	16400	16000
10	13600	16800	17200	22800	20200	28300	24100	76200	81400	39000	15100	14900
11	14100	16800	19900	25100	21000	27900	29100	72100	88400	37400	15300	14600
12	15100	17900	21500	24900	22700	30700	23700	67500	92400	33000	19300	14300
13	13700	19300	20600	17600	21800	24100	23500	61400	89400	31900	17400	15300
14	13700	21300	19900	19600	23900	22300	24400	63800	86800	28700	18100	16900
15	13600	20700	17900	22100	27100	21800	33300	67500	84800	27500	20000	18000
16	13700	20300	16500	23000	18500	24300	36000	69200	76500	26100	17200	20200
17	14100	23600	17800	25400	16800	26100	40700	67100	76800	28100	15900	22600
18	14400	20900	19500	25600	19400	24600	46100	65800	73700	27300	14700	22400
19	15700	23100	15300	29900	21900	27800	42900	66400	72400	25900	15900	25900
20	20100	22700	16000	22000	24400	27600	46600	70800	71300	21800	15200	24500
21	18600	19900	20700	23000	30200	27700	52300	76600	73200	21700	15200	19200
22	18500	17600	16900	23900	29900	26300	59700	82700	74600	23900	15000	24000
23	21200	23000	15300	23100	27100	23700	60900	84900	75700	27900	14700	24700
24	18400	17300	15000	22600	28400	26600	56500	85700	73500	23900	14400	22000
25	17700	16200	15300	23900	27800	28800	61400	80500	67100	26100	14300	22900
26	19200	20000	14400	20100	24800	26700	65400	79000	62300	23200	16600	24800
27	21500	22200	15700	21400	22000	29200	66400	85000	57500	21700	17000	23900
28	22300	22800	15700	25100	25300	28700	68800	84800	54500	21500	14300	25200
29	23300	21100	16400	27800	30700	21800	74000	84900	47200	21900	14000	26400
30	20800	20900	17800	28100	---	23300	75900	81100	45600	21900	13600	26100
31	19200	---	17800	26400	---	26800	---	80300	---	22100	13500	---
TOTAL	514900	584400	552300	708200	683400	800300	1203000	2339800	2271900	976300	506600	594600
MEAN	16610	19480	17820	22850	23570	25820	40100	75480	75730	31490	16340	19820
MAX	23300	23600	21500	29900	30700	30700	75900	85700	92400	47500	22100	26400
MIN	13300	16200	14400	16800	16800	20300	17200	61400	45600	21500	13500	13500
AC-FT	1021000	1159000	1095000	1405000	1356000	1587000	2386000	4641000	4506000	1936000	1005000	1179000

CAL YR 1979 TOTAL 10200430 MEAN 27950 MAX 78600 MIN 9830 AC-FT 20230000
WTR YR 1980 TOTAL 11735700 MEAN 32060 MAX 92400 MIN 13300 AC-FT 23280000

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1959 to current year.

REMARKS.--May 23 and June 19, samples taken after Mt. St. Helens May 18, 1980, eruption and ashfall.

INSTRUMENTATION.--Temperature recorder since October 1959.

COOPERATION.--Temperature records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum (1959-68, 1970-78), 25°C Aug. 11, 1960, Aug. 13, 1963, July 18, 1973; minimum, 0.0°C several days during winter months.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 23.5°C July 28; minimum, 1.0°C Jan. 27, 28, 31, and Feb. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH FIELD (UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE, WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)
OCT 25...	1000	16200	367	8.0	15.5	14.5	9.7	96	K5	--	--
NOV 21...	0830	17000	380	8.4	.0	8.0	11.4	98	K2	--	--
DEC 19...	0830	15300	388	8.2	5.5	6.0	12.0	99	K6	--	--
JAN 24...	0845	21800	364	8.1	2.0	4.0	13.2	104	<1	--	--
MAR 18...	0945	21200	281	7.8	12.0	6.5	12.0	100	K6	--	--
APR 23...	0815	59100	177	7.6	16.0	12.0	10.7	99	56	--	--
MAY 23...	1700	84700	129	8.1	--	12.5	10.6	104	47	85	.12
JUN 19...	0815	73500	213	7.6	23.0	17.0	9.3	96	26	--	--
JUL 23...	0800	29700	213	7.9	31.0	22.0	8.5	101	K19	--	--
AUG 15...	1000	19700	270	7.8	23.0	22.0	8.3	102	K13	--	--
SEP 24...	0845	21600	345	7.9	15.0	17.0	9.5	100	K7	--	--

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, TOTAL (MG/L AS PO4)
OCT 25...	--	9	.66	.71	.79	1.5	6.4	.10	.050	.15
NOV 21...	--	2	1.0	.48	.53	1.5	6.8	.06	.060	.18
DEC 19...	--	4	.72	.32	.40	1.1	5.0	.10	.060	.18
JAN 24...	--	4	1.0	.60	.66	1.7	7.3	.07	.060	.18
MAR 18...	--	8	.82	.62	.64	1.5	6.5	.02	.100	.31
APR 23...	--	23	.33	1.8	1.8	2.1	9.4	.05	.060	.18
MAY 23...	19400	--	.10	.44	.48	.58	2.6	.05	.050	.15
JUN 19...	--	14	.17	.43	.47	.64	2.8	.05	.040	.12
JUL 23...	--	0	.11	.65	.65	.76	3.4	.00	.040	.12
AUG 15...	--	11	.23	.39	.39	.62	2.7	.00	.070	.21
SEP 24...	--	6	.55	1.0	1.0	1.6	6.9	.00	.090	.28

K Results based on colony count outside the acceptable range (non-ideal colony count).

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)
NOV 21...	6	0	6	19	80	5	.1	30
DEC 19...	--	0	0	13	70	6	--	20
MAR 18...	4	0	4	15	690	12	.0	20
MAY 23...	2	1	0	27	770	11	<1.0	<50
JUN 19...	2	0	--	16	760	6	<1.0	<50
SEP 24...	6	0	8	50	260	10	.0	30

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)
MAR 18...	<1.8	<2.7	<.3	2.9	3.0	.7	.7
MAY 23...	<.5	<.7	1.0	1.7	1.6	1.5	1.6
JUN 19...	<1.2	<1.7	.4	2.2	2.1	.4	.4
SEP 24...	5.4	7.9	.3	5.2	4.9	.9	.9

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.0	18.5	18.5	12.5	12.0	12.5	7.0	6.0	6.5	4.5	4.0	4.0
2	19.0	18.0	18.5	12.0	12.0	12.0	6.5	6.0	6.0	5.0	4.0	4.5
3	18.5	18.0	18.5	12.5	11.5	12.0	6.5	6.0	6.5	5.0	4.5	5.0
4	18.0	17.0	17.5	11.5	11.5	11.5	7.0	6.5	6.5	5.0	4.5	4.5
5	18.5	17.5	18.0	11.5	11.0	11.5	6.5	6.0	6.5	4.5	4.0	4.5
6	18.5	17.5	18.0	12.0	11.5	11.5	6.5	6.5	6.5	4.0	3.0	3.5
7	18.5	17.5	18.0	11.5	11.0	11.0	7.0	6.5	6.5	3.5	3.0	3.0
8	18.5	17.5	18.0	11.0	11.0	11.0	6.5	6.5	6.5	3.5	3.0	3.5
9	18.0	17.0	17.5	11.0	10.5	11.0	6.5	6.0	6.0	3.0	1.5	3.0
10	17.5	16.5	17.0	10.5	10.0	10.5	6.5	6.0	6.0	3.0	2.0	3.0
11	17.5	16.5	17.0	10.0	10.0	10.0	6.0	5.0	5.5	3.5	3.0	3.0
12	17.5	17.0	17.0	10.0	9.5	10.0	5.5	5.5	5.5	3.5	3.0	3.5
13	17.5	16.5	17.0	10.0	9.5	9.5	5.5	5.5	5.5	3.5	1.5	3.0
14	17.5	16.5	17.0	10.0	9.0	9.5	6.0	5.5	5.5	4.0	2.5	3.5
15	17.0	17.0	17.0	9.5	9.0	9.5	6.0	6.0	6.0	4.0	3.5	4.0
16	17.0	16.5	16.5	9.0	7.5	9.0	6.0	5.5	6.0	4.0	3.5	4.0
17	16.5	16.0	16.0	10.0	9.0	9.5	6.0	5.5	6.0	4.0	4.0	4.0
18	15.5	15.0	15.5	9.5	8.5	9.0	6.5	6.0	6.5	4.0	3.5	4.0
19	15.0	14.5	15.0	9.0	8.5	9.0	6.0	5.5	5.5	3.5	2.5	3.0
20	15.0	14.5	15.0	9.0	8.0	8.5	5.5	5.5	5.5	2.5	2.0	2.5
21	15.0	14.5	14.5	8.0	7.5	8.0	6.0	5.5	6.0	3.0	2.5	2.5
22	14.0	14.0	14.0	8.0	7.5	7.5	6.0	5.5	5.5	3.5	3.0	3.5
23	14.5	14.0	14.0	9.0	7.5	8.5	5.0	4.5	5.0	3.5	3.5	3.5
24	14.0	14.0	14.0	8.5	7.5	8.0	4.5	4.0	4.5	4.0	3.0	3.5
25	14.0	14.0	14.0	7.5	7.0	7.5	5.0	4.5	4.5	3.5	3.0	3.0
26	14.0	13.5	13.5	7.5	7.0	7.0	4.5	4.5	4.5	3.0	1.5	2.0
27	13.5	13.5	13.5	7.5	7.0	7.5	5.0	4.5	4.5	2.0	1.0	1.5
28	13.5	13.0	13.5	7.5	6.5	7.0	5.0	4.0	4.5	2.0	1.0	1.5
29	13.5	13.0	13.0	7.0	6.5	6.5	4.5	4.0	4.0	2.0	1.5	2.0
30	13.0	12.5	13.0	7.0	6.5	6.5	4.0	4.0	4.0	2.0	1.5	2.0
31	13.0	12.0	12.5	---	---	---	4.0	2.5	4.0	2.0	1.0	1.5
MONTH	19.0	12.0	16.0	12.5	6.5	9.5	7.0	2.5	5.5	5.0	1.0	3.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1.5	1.0	1.5	6.0	5.0	5.5	8.0	7.0	7.5	12.0	10.0	11.0
2	2.0	1.5	1.5	6.0	5.0	5.5	8.5	7.0	7.5	12.5	12.0	12.0
3	2.0	1.5	2.0	6.5	6.0	6.0	8.5	7.5	8.0	13.0	12.0	12.5
4	2.0	2.0	2.0	6.5	6.0	6.0	8.5	7.5	8.0	13.5	12.5	13.0
5	2.0	2.0	2.0	6.0	5.0	5.5	9.0	8.0	8.5	13.5	12.5	13.0
6	2.0	2.0	2.0	5.0	4.5	5.0	9.0	8.0	8.5	13.0	11.5	12.5
7	2.5	2.0	2.5	5.5	4.5	5.0	8.5	7.5	8.0	11.5	11.0	11.5
8	2.5	2.0	2.5	6.0	5.0	5.5	8.0	6.5	8.0	12.0	11.0	11.5
9	3.0	2.5	2.5	6.0	5.5	6.0	8.5	8.0	8.0	11.5	11.0	11.5
10	3.0	3.0	3.0	7.0	6.0	6.5	8.5	8.0	8.5	11.0	11.0	11.0
11	3.0	3.0	3.0	7.0	7.0	7.0	9.0	8.0	8.5	12.0	10.5	11.0
12	3.5	3.0	3.0	7.0	6.0	6.5	10.0	8.5	9.0	12.5	11.5	12.0
13	3.0	3.0	3.0	7.0	6.0	6.5	11.0	9.0	10.0	13.0	11.5	12.0
14	3.0	2.5	3.0	6.5	6.5	6.5	10.5	10.0	10.0	13.0	12.0	12.5
15	3.0	2.5	3.0	6.5	5.5	6.0	10.5	9.5	10.0	13.0	12.5	12.5
16	3.0	2.5	3.0	6.5	5.5	6.0	10.5	9.5	10.0	12.5	12.0	12.0
17	3.5	2.5	3.0	6.0	6.0	6.0	10.5	9.5	10.0	13.0	12.0	12.5
18	4.5	3.5	4.0	7.0	6.0	6.5	11.5	10.0	11.0	13.5	12.5	13.0
19	5.0	4.0	4.5	7.5	6.5	7.0	12.0	10.5	11.5	14.5	13.5	14.0
20	5.0	4.5	5.0	7.0	6.5	7.0	12.0	11.0	11.5	15.5	14.0	14.5
21	5.0	4.5	4.5	6.5	6.5	6.5	11.5	10.5	11.0	15.0	14.5	15.0
22	4.5	4.0	4.0	7.5	6.5	7.0	11.0	10.5	10.5	14.5	13.0	14.0
23	4.5	4.0	4.5	8.0	7.0	7.5	11.0	11.0	11.0	12.5	12.0	12.0
24	4.5	4.0	4.0	7.5	6.5	7.0	11.0	10.5	11.0	12.0	11.0	11.5
25	5.0	4.0	4.5	7.5	6.5	7.0	11.5	10.5	11.0	11.0	10.5	10.5
26	5.5	4.5	5.0	7.0	6.5	7.0	12.0	10.5	11.5	11.0	10.5	11.0
27	6.0	5.5	6.0	7.0	6.5	6.5	12.5	11.0	12.0	12.0	11.0	11.5
28	6.0	5.5	6.0	8.0	6.5	7.0	12.5	11.5	12.0	13.0	12.0	12.5
29	6.0	5.0	5.5	7.5	7.0	7.5	12.0	11.0	12.0	14.0	12.5	13.0
30	---	---	---	7.5	6.5	7.0	11.0	10.0	10.5	13.5	13.0	13.5
31	---	---	---	8.0	6.5	7.0	---	---	---	14.5	13.0	14.0
MONTH	6.0	1.0	3.5	8.0	4.5	6.5	12.5	6.5	10.0	15.5	10.0	12.5

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14.5	13.5	14.0	18.0	17.5	17.5	22.5	21.5	22.0	20.0	19.0	19.5
2	13.5	13.0	13.0	18.0	17.5	17.5	22.5	21.5	22.0	20.5	19.5	19.5
3	13.0	12.5	13.0	17.5	17.0	17.0	22.0	21.0	21.5	20.0	19.0	19.5
4	13.5	12.5	13.0	17.0	16.5	17.0	22.0	21.0	21.5	20.0	18.5	19.5
5	14.0	13.0	13.5	17.5	16.5	17.0	22.0	21.0	21.5	20.5	19.0	19.5
6	14.0	13.5	13.5	18.5	17.0	18.0	21.5	21.0	21.0	20.5	19.5	20.0
7	14.5	13.5	14.0	19.5	17.5	18.5	22.0	21.0	21.0	20.5	20.0	20.0
8	15.5	14.0	14.5	19.5	19.0	19.5	21.5	21.0	21.0	21.0	19.5	20.0
9	16.0	15.0	15.5	20.0	18.5	19.5	22.0	21.0	21.5	21.0	20.0	20.5
10	15.5	15.0	15.5	20.0	18.5	19.5	22.0	21.0	21.5	20.0	20.0	20.0
11	16.0	15.0	15.5	20.0	19.0	19.5	22.5	21.5	22.0	21.0	20.0	20.5
12	15.5	14.5	15.0	19.5	19.0	19.5	22.5	21.5	22.0	20.0	19.5	20.0
13	14.5	14.0	14.5	19.5	18.5	19.0	22.5	21.5	22.0	20.0	19.5	19.5
14	14.5	13.5	14.0	19.5	19.0	19.0	22.5	21.5	22.0	20.0	19.0	19.5
15	14.0	13.0	13.5	20.0	18.5	19.0	22.0	21.5	22.0	20.0	19.0	19.5
16	15.0	13.5	14.0	20.5	19.0	19.5	22.0	21.0	21.5	20.0	19.0	19.5
17	15.5	14.5	15.0	20.5	19.0	20.0	21.5	21.0	21.5	20.0	18.0	19.5
18	16.0	15.0	15.5	20.5	19.5	20.0	21.0	20.0	20.5	19.5	19.0	19.5
19	17.0	15.0	16.0	21.0	19.5	20.0	21.0	19.5	20.0	19.0	19.0	19.0
20	17.0	16.0	16.5	21.5	20.0	20.5	21.0	20.0	20.5	19.0	18.5	18.5
21	18.0	16.0	16.5	22.5	21.0	21.5	21.0	20.0	20.5	18.5	17.0	18.0
22	17.0	16.0	16.5	22.5	21.5	22.0	21.5	20.5	21.0	17.5	16.5	17.0
23	16.0	15.0	15.5	23.0	21.5	22.5	21.5	20.5	21.0	18.0	17.5	17.5
24	16.0	15.0	15.5	22.5	21.5	22.0	21.5	20.5	21.0	18.0	17.5	17.5
25	16.0	15.5	15.5	22.5	21.5	22.0	21.0	20.0	20.5	18.0	17.0	17.5
26	16.0	15.5	15.5	23.0	21.5	22.5	21.0	20.0	20.5	18.0	17.5	18.0
27	15.5	14.5	15.0	23.0	22.0	22.5	21.0	20.0	20.5	18.5	17.5	18.0
28	16.5	15.0	16.0	23.5	22.0	22.5	20.5	19.0	19.5	18.5	18.0	18.0
29	17.5	16.5	17.0	23.0	22.0	22.5	20.0	18.5	19.0	18.5	18.0	18.5
30	18.0	17.0	17.5	23.0	22.0	22.5	19.5	18.5	19.0	18.5	18.0	18.5
31	---	---	---	22.5	22.0	22.0	19.5	19.0	19.5	---	---	---
MONTH	18.0	12.5	15.0	23.5	16.5	20.0	22.5	18.5	21.0	21.0	16.5	19.0
YEAR	23.5	1.0	12.0									

13334700 ASOTIN CREEK BELOW KEARNEY GULCH, NEAR ASOTIN, WA

LOCATION.--Lat 46°19'35", long 117°09'06", in SW¼SE¼ sec.22, T.10 N., R.45 E., Asotin County, Hydrologic Unit 17060103, on left bank 0.3 mi (0.5 km) downstream from Kearney Gulch, 2.5 mi (4.0 km) upstream from George Creek, 5.0 mi (8.0 km) west of Asotin, and at mile 5.3 (8.5 km).

DRAINAGE AREA.--170 mi^2 (440 km^2).

PERIOD OF RECORD.--October 1959 to current year.

REVISED RECORDS.--WDR WA-80-2: 1979.

GAGE.--Water-stage recorder. Altitude of gage is 1,090 ft (332 m), from topograhic map.

REMARKS.--Records good. Several diversions for irrigation. Prior to Nov. 20, 1959, at a point 3.3 mi (5.3 km) upstream, the city of Clarkston diverted about 30 ft^3/s (0.85 m^3/s) for municipal use and irrigation. Natural low flows nearly equivalent to those of former station 3.3 mi (5.3 km) upstream. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--21 years, 76.8 ft^3/s (2.175 m^3/s), 55,640 acre-ft/yr (68.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge about 3,700 ft^3/s (105 m^3/s) Jan. 15, 1974; maximum gage height, 8.07 ft (2.460 m) Jan. 14, 1974; minimum discharge, 13 ft^3/s (0.37 m^3/s) Jan. 11, 1963, result of freezeup; minimum gage height, 0.69 ft^3/s (0.210 m^3/s) Aug. 14, 15, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 220 ft^3/s (6.23 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 18	2300	*508	14.4	*2.82	0.860
Apr. 29	1015	253	7.16	2.07	0.631
May 6	1530	228	6.46	1.98	0.604

Minimum discharge, 27 ft^3/s (0.76 m^3/s) Nov. 29, gage height 0.96 ft (0.293 m).

REVISIONS.--Revised daily discharges, in cubic feet per second, for August 19, 1979 to September 30, 1979, are given below. These figures supersede those published in the report for 1979.

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
Aug. 19	45	Aug 23	37	Aug. 26	38	Aug. 29	41
20	46	24	44	27	48	30	40
21	40	25	39	28	49	31	41
22	38						
Sept. 1	39	Sept. 9	37	Sept. 17	33	Sept. 25	33
2	39	10	35	18	32	26	34
3	38	11	35	19	31	27	35
4	39	12	35	20	32	28	34
5	38	13	35	21	32	29	34
6	36	14	34	22	32	30	34
7	36	15	34	23	33		
8	35	16	34	24	33		

Month	Total	Mean	Max	Min	Ac-ft
August 1979	1120	36.1	61	27	2220
September 1979	1041	34.7	39	31	2060

DISCHARGE, IN CUBIC FEET PER SECOND, 'ATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	40	42	45	55	114	68	177	117	69	41	42
2	36	40	50	45	70	108	68	183	114	73	41	42
3	35	40	53	45	84	106	66	185	112	71	41	41
4	35	42	66	45	75	110	64	193	110	69	41	40
5	35	42	78	48	72	112	63	201	108	68	41	40
6	35	41	68	45	72	106	68	222	106	64	41	41
7	35	40	63	42	72	100	68	203	104	61	40	44
8	36	40	61	44	71	94	66	180	102	59	41	41
9	36	40	59	45	70	91	69	196	100	63	41	41
10	36	40	64	47	69	89	74	185	98	64	40	42
11	36	40	64	56	65	89	74	172	96	59	40	42
12	36	38	63	85	65	87	76	160	128	61	40	41
13	36	38	59	96	65	87	81	167	201	66	40	58
14	36	38	58	110	60	96	100	162	193	61	41	58
15	42	38	54	128	55	96	117	183	175	59	38	50
16	38	40	54	114	67	94	119	188	155	58	33	45
17	38	45	53	104	74	92	121	177	139	54	36	44
18	38	45	51	92	201	89	141	167	128	53	41	44
19	48	41	51	83	167	85	157	155	117	50	45	45
20	47	38	51	76	132	87	172	148	108	48	42	44
21	42	37	50	73	123	87	177	146	100	48	42	45
22	41	38	50	66	108	85	185	150	98	47	41	45
23	45	38	48	63	96	83	188	139	102	45	41	44
24	45	40	48	59	87	83	180	125	91	44	40	42
25	48	41	50	58	81	80	172	117	87	44	40	42
26	51	40	48	48	81	80	172	123	89	44	41	42
27	44	38	47	40	92	78	180	117	83	44	41	42
28	42	35	45	35	112	74	198	117	80	44	41	41
29	42	31	45	40	125	73	239	119	74	44	40	41
30	41	40	45	40	---	71	209	119	73	42	40	41
31	41	---	47	45	---	68	---	117	---	42	41	---
TOTAL	1236	1184	1685	1962	2566	2794	3732	4993	3388	1718	1252	1310
MEAN	39.9	39.5	54.4	63.3	88.5	90.1	124	161	113	55.4	40.4	43.7
MAX	51	45	78	128	201	114	239	222	201	73	45	58
MIN	35	31	42	35	55	68	63	117	73	42	33	40
AC-FT	2450	2350	3340	3890	5090	5540	7400	9900	6720	3410	2480	2600

CAL YR 1979 TOTAL 25775 MEAN 70.6 MAX 388 MIN 24 AC-FT 51120
WTR YR 1980 TOTAL 27820 MEAN 76.0 MAX 239 MIN 31 AC-FT 55180.

13343600 SNAKE RIVER BELOW LOWER GRANITE DAM, WA
(National Water Quality Surveillance System)

LOCATION.--Lat 46°40'04", long 117°26'38", in NE¼SE¼ sec.30, T.14 N., R.43 E., Garfield County, Hydrologic Unit 17060107, 1.0 mi (1.6 km) below Lower Granite Dam, 16 mi (25.7 km) northeast of Pomeroy, and at mile 106.5 (171.4 km).

DRAINAGE AREA.--103,500 mi^2 (268,100 km^2), *approximately.*

PERIOD OF RECORD.--October 1978 to current year. Chemical analyses July 1975 to September 1978.

GAGE.--Acoustic velocity meter (AVM) with water-stage and velocity-index recorder. Datum of gage is 600 ft (182.880 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Discharges for Nov. 8, 13, Jan. 29 to 31, Feb. 2, 17, Feb. 26 to Mar. 4, Mar. 14, 15, Mar. 21 to 31, May 9, and May 28 to Sept. 30 were supplied by Lower Granite Dam powerplant. Regulation by Lower Granite Dam 1.0 mi (1.6 km) upstream and by other storage reservoirs above station. Diversions above station for irrigation of over 4,090,000 acres (16,600 km^2).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 136,000 ft^3/s (3,850 m^3/s) June 13. Minimum daily discharge, 7,600 ft^3/s (215 m^3/s) Feb. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20400	24700	32900	18200	37000	41700	41700	105000	112000	61900	27500	18000
2	21800	30000	28900	26700	30100	33300	30000	103000	125000	56000	21200	21600
3	23400	24200	26900	27000	17800	27000	32300	103000	126000	51800	23600	28200
4	19800	14000	25500	30200	27200	34400	28200	107000	120000	62800	22200	24500
5	22100	23200	31300	19200	33300	40800	21800	114000	115000	65700	25700	25500
6	20600	20900	44100	14500	28300	38100	22300	125000	118000	58200	19900	27300
7	13100	22100	39700	27700	28900	46200	33900	114000	123000	63900	23100	26400
8	14600	22900	31200	40700	34100	36300	30100	105000	116000	54400	24500	24600
9	18700	22600	30900	38600	27700	35400	35000	108000	114000	58500	16900	27400
10	17300	15300	29900	37700	18900	40300	42600	110000	114000	55400	23100	28000
11	15100	17000	28100	40300	27000	34200	36000	102000	124000	52800	30400	25400
12	17100	22200	32600	32300	28400	42100	31000	91200	126000	32600	20800	22500
13	17500	29000	34600	20400	32000	29200	27400	81900	136000	41200	28900	24500
14	11900	30400	31700	31600	34200	30200	31800	86000	121000	44300	25900	27000
15	24600	23800	32000	39700	35100	34500	43200	90200	120000	35100	16500	27800
16	16400	20800	32000	39400	26600	20400	49800	97000	115000	39900	23500	27700
17	15900	30100	31100	43400	7600	38900	52800	89800	110000	38700	26600	31300
18	18700	27300	28100	43800	30400	33500	56800	84700	108000	39600	11100	32900
19	18300	28200	32100	38900	31600	34200	65000	83100	108000	35600	22600	28400
20	24100	30000	33700	25200	37200	37100	67200	94000	104000	24200	28700	33700
21	25300	32700	31800	30500	44500	36100	73400	108000	102000	38200	18700	26300
22	26100	28300	26000	37500	44100	36800	79800	117000	97400	31500	23800	31000
23	24100	33400	14800	37600	34100	27500	88000	124000	101000	38000	13400	38700
24	27800	31600	15900	34200	31100	39000	95300	125000	94800	34600	19300	36600
25	29200	21100	16300	30800	37200	46600	82300	110000	93100	27800	19000	31200
26	22000	29900	26900	31900	29800	37200	98400	125000	87200	28200	24300	35500
27	24800	36000	23100	23000	26200	41600	96200	122000	80800	26100	22300	40600
28	25500	36200	20200	39600	31100	35000	105000	123000	69600	30100	19800	24200
29	31900	33900	20900	45200	39300	35400	115000	117000	56500	28200	15000	27900
30	24800	32700	14400	39500	---	22800	117000	115000	68900	29700	11100	40300
31	25600	---	21300	36300	---	36800	---	112000	---	30700	17900	---
TOTAL	658500	794500	868900	1021600	890800	1102600	1729300	3291900	3206300	1315700	667300	865000
MEAN	21240	26480	28030	32950	30720	35570	57640	106200	106900	42440	21530	28830
MAX	31900	36200	44100	45200	44500	46600	117000	125000	136000	65700	30400	40600
MIN	11900	14000	14400	14500	7600	20400	21800	81900	56500	24200	11100	18000
AC-FT	1306000	1576000	1723000	2026000	1767000	2187000	3430000	6529000	6360000	2610000	1324000	1716000

CAL YR 1979 TOTAL 15084800 MEAN 41330 MAX 143000 MIN 9600 AC-FT 29920000
WTR YR 1980 TOTAL 16412400 MEAN 44840 MAX 136000 MIN 7600 AC-FT 32550000

13344500 TUCANNON RIVER NEAR STARBUCK, WA

LOCATION.--Lat 46°30'17", long 118°03'55", in NE¼SW¼ sec.21, T.12 N., R.38 E., Columbia County, Hydrologic Unit 17060107, on right bank 180 ft (55 m) downstream from county road bridge, 0.5 mi (0.8 km) downstream from Smith Hollow, 3.0 mi (4.8 km) east of Starbuck, 3.3 mi (5.3 km) downstream from Pataha Creek, and at mile 7.9 (12.7 km).

DRAINAGE AREA.--431 mi² (1,116 km²).

PERIOD OF RECORD.--October 1914 to September 1917, August 1928 to September 1931, October 1958 to current year. Monthly discharge only for October and November 1914, published in WSP 1317. Water temperatures and sediment records October 1962 to June 1970.

REVISED RECORDS.--WSP 1347: 1930.

GAGE.--Water-stage recorder. Elevation of gage is 735.9 ft (224.3 m) from plane table survey. Nov. 8, 1914, to Sept. 30, 1917, nonrecording gage at site 2.8 mi (4.5 km) upstream at different datum. Aug. 9, 1928, to Sept. 30, 1931, nonrecording gages at site 2.5 mi (4.0 km) upstream at various datums.

REMARKS.--Records good. Many small diversions for irrigation above the station.

AVERAGE DISCHARGE.--28 years (water years, 1915-17, 1929-31, 1959-80), 176 ft³/s (4.984 m³/s), 127,500 acre-ft/yr (157 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,980 ft³/s (226 m³/s) Dec. 22, 1964, gage height, 9.84 ft (2.999 m), from rating curve extended above 2,500 ft³/s (70.8 m³/s) on basis of slope-area measurement of peak flow; minimum, 15 ft³/s (0.42 m³/s) July 11, 12, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 15	0100	901	25.5	2.69	0.820	Feb. 18	2130	720	20.4	2.39	0.728
Feb. 3	0300	725	20.5	2.40	.732	June 16	2330	*1,510	42.8	*3.70	1.128

Minimum daily discharge, 54 ft³/s (1.529 m³/s) Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	87	89	104	90	244	182	340	215	108	66	64
2	56	87	106	110	128	231	180	351	212	106	62	67
3	59	87	124	110	254	225	177	351	203	108	69	67
4	61	89	136	112	180	221	177	344	194	106	69	66
5	59	91	182	148	130	231	177	344	185	110	66	64
6	62	91	143	146	136	221	180	375	182	104	64	61
7	63	89	131	130	143	215	182	375	177	97	62	62
8	63	89	124	130	128	203	180	332	169	89	74	62
9	64	89	119	125	124	197	185	355	158	102	74	62
10	62	87	131	125	122	191	194	351	158	108	67	62
11	64	89	128	128	122	209	188	325	150	93	67	64
12	66	89	122	265	119	200	188	292	161	91	64	64
13	67	89	117	429	122	203	197	292	250	95	64	89
14	67	89	112	710	119	228	225	281	244	91	61	100
15	74	89	112	660	117	257	257	313	234	83	56	89
16	80	89	117	504	115	247	274	317	271	80	54	80
17	78	102	110	429	112	247	277	292	285	80	56	72
18	80	108	110	359	348	244	303	281	215	78	72	70
19	102	102	110	292	308	236	325	274	194	76	89	72
20	102	95	110	257	271	234	347	257	185	76	83	76
21	97	91	110	241	250	247	375	247	180	76	74	82
22	93	93	110	204	244	236	375	247	169	72	69	82
23	93	102	108	191	234	237	367	244	174	72	67	80
24	95	100	106	174	209	237	351	228	163	69	64	74
25	95	102	112	166	197	236	332	228	153	70	67	72
26	104	100	110	130	197	221	317	281	143	70	66	72
27	97	95	106	95	203	220	321	250	136	70	61	72
28	93	87	104	75	225	209	332	237	128	74	62	70
29	91	83	102	70	247	197	399	234	119	72	64	70
30	91	89	102	70	---	203	395	231	115	67	62	68
31	89	---	102	75	---	185	---	237	---	66	64	---
TOTAL	2423	2769	3605	6764	5194	6914	7959	9106	5522	2657	2059	2163
MEAN	78.2	92.3	116	218	179	223	265	294	184	85.7	66.4	72.1
MAX	104	108	182	710	348	257	399	375	285	110	89	100
MIN	56	83	89	70	90	185	177	228	115	66	54	61
AC-FT	4810	5490	7150	13420	10300	13710	15790	18060	10950	5270	4080	4290

CAL YR 1979 TOTAL 58773 MEAN 161 MAX 1680 MIN 38 AC-FT 116600
WTR YR 1980 TOTAL 57135 MEAN 156 MAX 710 MIN 54 AC-FT 113300

13344520 TUCANNON RIVER AT POWERS, WA

LOCATION.--Lat 46°32'18", long 118°09'18", in SW¼NW¼ sec.11, T.12 N., R.37 E., Columbia County, Hydrologic Unit 17060107, at road bridge at Powers, 2 mi (3.2 km) northwest of Starbuck.

DRAINAGE AREA.--About 500 mi² (1,300 km²).

PERIOD OF RECORD.--Water years 1974, 1977 to June 1980 (discontinued).

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1979								
23...	1225	93	175	7.0	13.1	5	15	9.9
NOV								
27...	1130	95	101	7.3	3.7	6	20	11.9
DEC								
18...	1150	110	165	7.1	7.5	24	2.0	11.0
JAN , 1980								
22...	1130	212	145	7.2	3.5	18	15	12.0
FEB								
27...	1200	203	170	7.0	10.2	--	110	9.3
MAR								
25...	1150	234	150	7.0	8.8	25	70	10.7
APR								
22...	1200	375	120	7.1	12.2	38	90	9.3

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979							
23...	.26	.030	.04	.090	.28	.080	.25
NOV							
27...	.13	.010	.01	.050	.15	.080	.25
DEC							
18...	.53	.020	.02	.090	.28	.110	.34
JAN , 1980							
22...	1.3	.110	.13	.100	.31	.110	.34
FEB							
27...	.88	.390	.47	.220	.67	.140	.43
MAR							
25...	.55	.100	.12	.120	.37	.070	.21
APR							
22...	.28	.000	.00	.240	.74	.080	.25

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	ACIDITY (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
MAY , 1980										
29...	1010	234	110	6.9	14.4	40	8.5	--	--	--
29...	1640	238	101	8.2	14.5	1.0	9.2	44	5.0	11
JUN										
13...	1145	267	103	7.8	14.4	5.4	10.2	40	5.0	9.9
24...	1000	163	160	7.0	15.7	15	9.4	--	--	--
26...	1115	174	124	8.2	16.6	15	10.0	53	--	13

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
MAY , 1980										
29...	--	--	--	--	--	--	--	--	--	--
29...	3.9	4.6	18	.3	2.3	52	.5	.1	.9	38
JUN										
13...	3.8	3.6	16	.3	2.5	28	.7	.1	12	37
24...	--	--	--	--	--	--	--	--	--	--
26...	4.9	4.7	15	.3	2.8	60	.6	6.0	1.0	38

13344520 TUCANNON RIVER AT POWERS, WA--Continued

WATER QUALITY DATA OCTOBER 1979 TO JUNE 1980

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)
MAY , 1980										
29...	--	--	--	--	.14	--	.010	--	.01	--
29...	88	92	.12	56.5	.23	.06	.070	.060	.06	.08
JUN										
13...	92	86	.13	66.3	.09	.13	.000	.000	.00	.00
24...	--	--	--	--	.13	--	.030	--	.04	--
26...	96	107	.13	45.1	.04	.07	.030	.030	.04	.04

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
MAY , 1980										
29...	--	--	--	--	--	--	--	.070	.21	--
29...	.79	.32	.86	.48	.38	1.1	4.8	.060	.18	.060
JUN										
13...	.76	.47	.78	.31	.47	.87	3.9	.160	.49	.030
24...	--	--	--	--	--	--	--	.090	.28	--
26...	.88	.33	.91	.55	.36	.95	4.2	.160	.49	.090

DATE	TIME	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, SUS-PENDED RECOV. (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ANTI-MONY, TOTAL (UG/L AS SB)	ANTI-MONY, SUS-PENDED TOTAL (UG/L AS SB)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)
MAY , 1980										
29...	1640	340	290	50	0	0	0	2	0	2
JUN										
13...	1145	500	470	30	0	0	0	1	0	1
26...	1115	480	460	20	--	--	--	2	0	2

DATE	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	BORON, SUS-PENDED RECOV-ERABLE (UG/L AS B)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)
MAY , 1980										
29...	0	0	20	30	10	20	0	<1	0	0
JUN										
13...	100	80	20	50	10	40	0	<1	0	0
26...	0	0	20	30	0	30	0	<1	10	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)
MAY , 1980										
29...	0	0	<3	5	<10	610	550	61	2	--
JUN										
13...	0	0	<3	12	<10	2800	2800	46	8	--
26...	0	3	<3	6	<10	2200	2200	35	4	4

13344520 TUCANNON RIVER AT POWERS, WA--Continued

WATER QUALITY DATA OCTOBER 1979 TO JUNE 1980

DATE	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
MAY , 1980										
29...	<10	0	<4	30	20	7	.1	.0	.2	5
JUN										
13...	<10	0	<4	90	80	13	.6	.1	.5	14
26...	0	10	<4	70	60	14	.0	.0	.0	14

DATE	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
MAY , 1980										
29...	3	2	0	0	0	0	0	0	20	<3
JUN										
13...	10	4	0	0	0	0	0	0	20	<3
26...	14	0	0	0	0	0	0	0	70	<3

13345300 PALOUSE RIVER AT PALOUSE, WA

LOCATION.--Lat 46°54'36", long 117°04'12", in SW¼NW¼ sec.6, T.16 N., R.46 E., Whitman County, Hydrologic Unit 17060108, on right bank at State Highway 6, 0.3 mi (0.5 km) east of the intersection of State Highways 6, 27, and 272 in Palouse and at mile 212.1 (194.8 km).

DRAINAGE AREA.--360 mi^2 (932 km^2), approximately.

PERIOD OF RECORD.--May 1973 to September 1980 (discontinued). Chemical analyses October 1974 to September 1975, sediment records September 1961 to August 1964 (published as 13345400).

GAGE.--Water-stage recorder. Datum of gage is 2,412.62 ft (735.367 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers reference mark).

REMARKS.--Records good. Small diversions for irrigation upstream from station. Low flows regulated by millpond at Potlatch, Idaho.

AVERAGE DISCHARGE.--7 years (water year 1974-80), 269 ft^3/s (7.618 m^3/s), 194,900 acre-ft/yr (240 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft^3/s (320 m^3/s) Jan. 16, 1974, gage height, 16.08 ft (4.901 m); no flow Aug. 26 to Sept. 9, 1973, and Aug. 21-27, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,900 ft^3/s (53.8 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 15	Unknown	Unknown		Unknown	
May 26	1700	*2,210	62.6	*6.93	2.112

Minimum discharge, 2.4 ft^3/s (0.068 m^3/s) Oct. 3-14, gage height 0.54 ft (0.165 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	26	13	38	35	694	304	147	527	78	14	9.4
2	2.8	22	22	48	81	542	270	135	570	60	8.8	21
3	2.8	21	57	54	393	467	249	138	397	56	8.2	20
4	2.4	18	146	38	506	799	238	125	319	59	9.9	31
5	2.4	18	254	52	383	666	238	108	284	60	14	26
6	2.4	18	150	40	305	515	258	101	294	53	15	22
7	2.4	18	97	35	251	425	270	125	243	54	15	16
8	2.4	18	79	33	220	355	249	114	202	50	9.4	14
9	2.4	18	73	32	183	346	260	117	181	43	14	14
10	2.4	16	67	30	203	313	345	133	164	44	12	16
11	2.4	16	81	40	169	493	329	128	149	64	6.5	12
12	2.4	16	67	50	144	581	309	106	143	67	5.9	11
13	2.4	16	61	110	128	527	309	100	236	46	6.5	16
14	2.9	15	52	600	117	823	332	94	249	45	7.7	19
15	4.8	12	47	1800	115	910	406	88	258	45	7.7	18
16	4.8	11	49	1000	113	554	431	127	260	45	5.4	18
17	6.6	14	67	500	130	431	386	122	238	42	4.8	23
18	16	24	66	340	481	389	355	101	208	36	16	19
19	20	49	88	240	631	332	345	97	186	32	14	16
20	40	45	79	210	877	304	332	82	156	29	27	27
21	55	33	70	190	802	322	314	71	151	28	21	26
22	39	35	62	150	536	294	292	72	132	24	15	32
23	36	26	54	130	394	277	265	74	164	26	13	34
24	38	29	50	111	293	263	243	72	151	23	11	27
25	45	27	51	97	278	243	216	72	124	21	13	23
26	39	28	50	80	272	229	198	1530	117	20	13	20
27	47	20	43	65	413	258	177	1210	120	19	9.9	17
28	40	16	37	65	550	263	164	693	114	16	9.9	15
29	32	14	35	55	868	260	160	476	101	14	11	15
30	30	13	34	50	---	306	169	383	92	18	11	12
31	29	---	35	30	---	353	---	348	---	17	11	---
TOTAL	557.5	652	2136	6313	9871	13534	8413	7289	6530	1234	360.6	589.4
MEAN	18.0	21.7	68.9	204	340	437	280	235	218	39.8	11.6	19.6
MAX	55	49	254	1800	877	910	431	1530	570	78	27	34
MIN	2.4	11	13	38	35	229	160	71	92	14	4.8	9.4
AC-FT	1110	1290	4240	12520	19580	26840	16690	14460	12950	2450	715	1170

CAL YR 1979 TOTAL 88242.4 MEAN 242 MAX 3440 MIN 2.4 AC-FT 175000
WTR YR 1980 TOTAL 57479.5 MEAN 157 MAX 1800 MIN 2.4 AC-FT 114000

13348000 SOUTH FORK PALOUSE RIVER AT PULLMAN, WA

LOCATION.--Lat 46°43'57", long 117°10'48", in NE¼NE¼ sec.6, T.14 N., R.45 E., Whitman County, Hydrologic Unit 17060108, on right bank at State Street crossing in Pullman, 600 ft (183 m) upstream from Missouri Flat Creek, and at mile 22.2 (35.7 km).

DRAINAGE AREA.--132 mi^2 (342 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1934 to September 1942, December 1959 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,326.3 ft (709.06 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1934, nonrecording gage at site 30 ft (9 m) upstream.

REMARKS.--Water-discharge records excellent. Minor diversions for domestic use above station. Slight regulation caused by pondage at Robinson Park Dam on headwaters and by Moscow sewage disposal plant on Paradise Creek.

AVERAGE DISCHARGE.--28 years (water years 1935-42, 1961-80) 39.4 ft^3/s (1.116 m^3/s), 4.05 in/yr (103 mm/yr), 28,550 acre-ft/yr (35.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,570 ft^3/s (129 m^3/s) Jan. 21, 1972, gage height, 9.46 ft (2.883 m); minimum, 0.1 ft^3/s (0.003 m^3/s) Sept. 23, 1942, gage height, 0.50 ft (0.152 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1910, 9.5 ft (2.90 m) Feb. 26, 1948, discharge, 5,000 ft^3/s (142 m^3/s). Flood of Jan. 24, 1959, reached a stage of 6.5 ft (1.98 m) from floodmarks, discharge, 1,860 ft^3/s (52.7 m^3/s). Flood of Dec. 22, 1933, reached a stage of 6.0 ft (1.83 m) from gage readings furnished by Washington State University, discharge, 1,800 ft^3/s (51.0 m^3/s).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,000 ft^3/s (28.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 13	0230	*1,090	30.9	*4.42	1.347

Minimum discharge, 2.4 ft^3/s (0.068 m^3/s) Oct. 5, 10; gage height, 0.68 ft (0.207 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	5.3	6.8	19	13	57	47	19	30	7.8	3.7	11
2	3.8	5.4	22	22	36	51	40	18	29	8.1	3.9	6.9
3	3.9	5.4	37	23	300	52	36	16	24	7.1	3.9	5.3
4	3.9	6.0	68	20	163	73	35	15	24	8.1	4.0	4.8
5	3.2	6.8	51	18	87	70	36	13	24	7.0	4.1	5.3
6	3.4	6.0	26	15	64	67	37	18	22	6.6	4.0	4.7
7	3.8	5.6	20	13	78	67	33	17	19	5.7	3.9	4.7
8	3.7	6.0	16	11	59	73	30	14	17	6.2	3.6	4.7
9	4.0	5.7	14	10	48	91	42	28	15	6.4	3.8	5.3
10	3.4	5.3	15	10	47	68	42	26	15	19	4.0	5.2
11	3.9	5.2	11	11	38	101	31	21	15	8.5	3.7	4.7
12	3.9	5.0	11	31	32	68	28	16	21	8.6	3.7	4.8
13	3.4	5.3	10	74	29	97	26	14	30	7.0	3.9	11
14	4.2	5.2	10	206	23	218	26	12	21	6.8	3.5	9.2
15	6.1	5.2	17	218	27	122	26	30	23	7.1	3.4	6.1
16	4.8	6.0	17	134	27	83	26	31	20	6.0	3.5	5.3
17	4.4	20	16	161	90	76	24	20	19	6.1	4.3	4.8
18	6.3	22	16	99	600	74	22	17	14	5.5	7.5	5.2
19	21	11	14	57	256	57	22	16	13	5.7	5.0	4.5
20	10	8.2	12	44	231	64	22	15	10	5.1	4.7	7.5
21	9.0	6.5	11	37	135	102	22	14	10	5.0	4.1	6.7
22	7.0	7.8	10	32	99	60	22	20	16	4.9	4.4	5.3
23	8.7	13	8.8	29	76	51	21	16	19	4.8	4.1	5.2
24	6.9	14	8.8	30	60	42	20	15	12	4.6	4.1	4.7
25	12	9.6	13	28	60	41	19	23	11	4.6	4.2	4.8
26	15	8.0	14	21	65	41	19	143	11	4.0	4.3	5.0
27	6.9	7.3	11	17	74	58	18	88	11	4.5	5.7	4.7
28	6.4	6.3	9.2	13	84	51	19	52	9.7	4.2	6.2	4.8
29	6.3	5.8	8.5	11	74	47	25	38	8.4	3.9	5.2	4.7
30	6.2	6.1	8.3	9.0	---	53	22	42	7.4	4.1	4.7	4.5
31	5.6	---	9.3	10	---	61	---	31	---	3.7	8.3	---
TOTAL	195.0	235.0	521.7	1433.0	2975	2236	838	858	520.5	196.7	137.4	171.4
MEAN	6.29	7.83	16.8	46.2	103	72.1	27.9	27.7	17.4	6.35	4.43	5.71
MAX	21	22	68	218	600	218	47	143	30	19	8.3	11
MIN	3.2	5.0	6.8	9.0	13	41	18	12	7.4	3.7	3.4	4.5
CFSM	.05	.06	.13	.35	.78	.55	.21	.21	.13	.05	.03	.04
IN.	.05	.07	.15	.40	.84	.63	.24	.24	.15	.06	.04	.05
AC-FT	387	466	1030	2840	5900	4440	1660	1700	1030	390	273	340

CAL YR 1979 TOTAL 19926.1 MEAN 54.6 MAX 1770 MIN 3.0 CFSM .41 IN 5.62 AC-FT 39520
WTR YR 1980 TOTAL 10317.7 MEAN 28.2 MAX 600 MIN 3.2 CFSM .21 IN 2.91 AC-FT 20470

13348000 SOUTH FORK PALOUSE RIVER AT PULLMAN, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974, 1977 to June 1980 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)
OCT , 1979							
23...	0945	7.9	600	7.4	9.5	20	10
NOV							
27...	0930	7.5	543	7.2	2.4	10	40
DEC							
18...	0900	16	485	7.4	5.2	3	25
JAN , 1980							
22...	0900	31	400	7.3	1.8	11	60
FEB							
27...	0910	76	190	7.2	6.6	--	205
MAR							
25...	0920	41	310	6.9	5.1	8	160
APR							
22...	0930	22	330	7.9	12.4	15	85
MAY							
29...	0750	44	270	7.3	12.0	--	175
JUN							
24...	0750	12	290	7.8	13.7	--	80

DATE	OXYGEN, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)
OCT , 1979							
23...	11.2	7.8	.020	.02	3.30	10	2.90
NOV							
27...	12.8	6.6	.120	.15	1.50	4.6	2.20
DEC							
18...	11.8	9.0	.230	.28	2.20	6.7	--
JAN , 1980							
22...	12.9	12	.420	.51	.970	3.0	.870
FEB							
27...	11.6	8.6	.430	.52	.650	2.0	.410
MAR							
25...	11.0	6.9	.400	.48	.680	2.1	.500
APR							
22...	10.2	1.3	.020	.02	.150	.46	.140
MAY							
29...	9.1	3.0	.010	.01	.820	2.5	.390
JUN							
24...	9.2	1.6	.040	.05	1.10	3.4	.770

13349210 PALOUSE RIVER BELOW SOUTH FORK, AT COLFAX, WA

LOCATION.--Lat 46°53'23", long 117°22'09", in NW¼SW¼ sec.11, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, on left bank at Colfax, 750 ft (229 m) downstream from South Fork, 0.3 mi (0.5 km) upstream from bridge on U.S. Highway 195, and at mile 89.5 (144.0 km).

DRAINAGE AREA.--796 mi^2 (2,062 km^2).

PERIOD OF RECORD.--October 1963 to June 1973, October 1973 to September 1975 (annual maximum only), October 1975 to current year.

REVISED RECORDS.--WSP 2134: 1967, 1968.

GAGE.--Water-stage recorder. Datum of gage is 1,932.22 ft (588.941 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Small diversions for irrigation above station. Slight regulation by millpond and city of Moscow, Idaho, sewage disposal plant.

AVERAGE DISCHARGE.--14 years (water years 1964-72, 1976-80) 380 ft^3/s (10.76 m^3/s), 275,300 acre-ft/yr (339 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft^3/s (476 m^3/s) Jan. 16, 1974, gage height, 18.73 ft (5.709 m); minimum, 1.7 ft^3/s (0.048 m^3/s) Aug. 3, 23, 1966; minimum gage height, 0.88 ft (0.268 m) Aug. 3, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 3, 1963, reached a stage of 16.49 ft (5.026 m) discharge, 14,500 ft^3/s (411 m^3/s), by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 3,000 ft^3/s (85.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 26	2230	*2,970	84.1	*8.47	2.582

Minimum discharge, 11 ft^3/s (0.31 m^3/s) Oct. 3, gage height 1.72 ft (0.524 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	52	40	92	100	853	479	208	469	90	15	21
2	13	49	67	118	221	692	428	189	704	89	14	30
3	13	46	130	142	1300	607	391	183	523	88	14	24
4	13	45	220	122	753	883	370	171	422	80	14	22
5	14	45	392	115	489	844	361	148	350	78	13	31
6	13	45	346	100	382	706	370	141	330	81	13	36
7	13	43	212	80	385	624	391	152	301	68	14	30
8	14	42	161	60	341	534	361	162	254	62	16	25
9	15	43	135	55	290	563	361	162	222	56	15	24
10	15	44	124	65	294	484	441	183	195	68	13	24
11	14	42	111	80	268	620	428	181	183	67	14	22
12	15	41	128	107	233	776	400	152	173	85	15	20
13	15	41	109	269	211	753	382	130	226	80	16	22
14	14	41	106	1040	171	1220	379	118	341	63	14	34
15	17	40	100	1670	150	1230	425	127	338	59	16	28
16	20	41	108	1010	190	822	479	169	367	57	15	24
17	19	59	109	943	238	651	431	175	338	56	14	25
18	21	83	130	649	1610	612	403	150	293	50	18	26
19	37	71	134	422	1140	524	391	130	242	43	28	25
20	61	94	145	332	1240	481	373	110	213	38	23	23
21	62	78	131	280	1160	594	361	99	193	37	31	29
22	84	63	118	240	835	489	347	90	242	37	41	34
23	69	79	105	200	618	451	319	101	195	34	32	32
24	62	75	100	180	485	422	293	93	183	32	27	37
25	68	77	97	170	462	398	270	110	152	31	26	30
26	92	60	101	110	449	382	249	1720	141	28	23	30
27	68	52	90	80	558	457	224	1900	128	26	33	33
28	76	43	69	60	660	505	219	968	120	25	46	33
29	69	40	60	50	958	437	247	649	109	23	46	30
30	57	43	78	40	---	460	235	563	93	17	43	28
31	53	---	85	60	---	558	---	481	---	16	39	---
TOTAL	1131	1617	4041	8941	16191	19632	10808	9915	8040	1664	701	832
MEAN	36.5	53.9	130	288	558	633	360	320	268	53.7	22.6	27.7
MAX	92	94	392	1670	1610	1230	479	1900	704	90	46	37
MIN	13	40	40	40	100	382	219	90	93	16	13	20
AC-FT	2240	3210	8020	17730	32110	38940	21440	19670	15950	3300	1390	1650

CAL YR 1979 TOTAL 151833.2 MEAN 416 MAX 8700 MIN 4.6 AC-FT 301200
WTR YR 1980 TOTAL 83513.0 MEAN 228 MAX 1900 MIN 13 AC-FT 165600

13351000 PALOUSE RIVER AT HOOPER, WA

LOCATION.--Lat 46°45'31", long 118°08'52", in NE¼SE¼ sec.27, T.15 N., R.37 E., Whitman County, Hydrologic Unit 17060108, on left bank 150 ft (46 m) downstream from bridge on State Highway 26 at Hooper, 0.3 mi (0.5 km) upstream from Cow Creek, 3.5 mi (5.6 km) downstream from right bank tributary, 6.0 mi (9.7 km) downstream from Willow Creek, and at mile 19.6 (31.5 km).

DRAINAGE AREA.--2,500 mi^2 (6,475 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to August 1897 (gage heights only), September 1897 to December 1899, April 1900 to April 1907, June 1908 to July 1912, March 1913 to March 1916, February 1951 to current year. Prior to 1904 sometimes published as "near Hooper."

REVISED RECORDS.--WSP 1287: 1897-1904, 1910(M), 1915-16(M). WSP 1447: 1910. WSP 1934: Draininage area. WSP 1447: 1906(M). WSP 1567: 1908-9(M).

GAGE.--Water-stage recorder. Elevation of gage is 1,040.8 ft (317.24 m), National Geodetic Vertical Datum of 1929. Apr. 1 to Aug. 31, 1897, nonrecording gage at site 2.5 mi (4.0 km) upstream at different datum. Sept. 9, 1897, to March 1916, various nonrecording gages at site 1.5 mi (2.4 km) upstream from present site at different datums. Feb. 8 to Mar. 28, 1951, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Diversions above station for irrigation and municipal use. Bonneville Power Administration Satellite telemeter at station.

AVERAGE DISCHARGE.--42 years (water years 1898-99, 1901-06, 1909-11, 1914-15, 1952-80), 613 ft^3/s (17.36 m^3/s), 444,100 acre-ft/yr (548 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft^3/s (949 m^3/s) Feb. 4, 1963, gage height, 19.13 ft (5.831 m) from rating curve extended above 18,000 ft^3/s (510 m^3/s) on basis of slope-area measurement of peak flow; no flow part or all of each day June 25, 1910, Aug. 1-17, Aug. 28 to Sept. 4, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,700 ft^3/s (105 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	(m^3/s)	Gage height (ft)	(m)
Feb. 4	1645	3,880	110	9.48	2.890
Feb. 18	2030	*4,700	133	*10.07	3.069

Minimum discharge, 26 ft^3/s (0.74 m^3/s) Jan. 26, Aug. 8; minimum gage height, 3.01 ft (0.917 m) Aug. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	97	102	160	170	1450	870	372	807	205	44	38
2	29	92	108	171	255	1240	757	360	822	192	42	41
3	29	90	123	178	604	1060	685	336	958	180	41	47
4	28	90	151	209	1470	1050	627	321	776	170	43	48
5	29	88	211	229	1160	1370	600	303	658	164	38	55
6	29	85	416	175	912	1200	596	277	572	159	36	54
7	30	83	433	120	784	1060	600	260	528	151	34	51
8	33	83	299	100	743	970	609	252	476	140	30	57
9	34	83	242	100	650	885	580	277	420	133	33	58
10	34	82	210	100	569	907	584	288	375	132	34	53
11	34	81	193	120	539	845	685	297	345	126	32	49
12	33	81	179	191	490	1130	654	297	318	126	33	44
13	34	81	186	237	443	1160	609	306	327	126	35	55
14	37	80	182	373	369	1260	588	262	360	140	31	57
15	38	77	178	1730	299	1950	580	250	504	128	28	56
16	39	79	173	1800	340	1600	627	257	552	120	30	56
17	41	92	172	1390	379	1200	681	294	600	115	29	58
18	45	97	177	1280	1870	1060	627	318	548	108	33	54
19	58	103	187	853	3230	991	588	300	480	104	36	50
20	67	113	194	644	2240	869	568	267	420	102	35	54
21	74	111	208	529	2170	856	556	245	372	98	32	59
22	89	121	200	507	1670	961	540	228	339	91	36	60
23	94	129	187	468	1330	802	520	220	372	83	32	59
24	114	127	179	426	1080	742	480	215	345	78	29	61
25	104	133	177	402	899	695	445	211	321	73	35	61
26	97	127	173	219	856	663	410	491	300	67	34	60
27	98	123	173	120	872	672	378	2570	270	61	32	65
28	115	102	172	100	1020	784	354	1710	260	59	33	63
29	110	84	161	100	1190	791	360	1200	238	55	32	60
30	104	95	146	80	---	728	392	946	226	51	33	58
31	107	---	138	120	---	764	---	1010	---	48	33	---
TOTAL	1839	2909	6030	13231	28603	31715	17150	14940	13889	3585	1058	1641
MEAN	59.3	97.0	195	427	986	1023	572	482	463	116	34.1	54.7
MAX	115	133	433	1800	3230	1950	870	2570	958	205	44	65
MIN	28	77	102	80	170	663	354	211	226	48	28	38
AC-FT	3650	5770	11960	26240	56730	62910	34020	29630	27550	7110	2100	3250

CAL YR 1979 TOTAL 261857 MEAN 717 MAX 20300 MIN 12 AC-FT 519400
WTR YR 1980 TOTAL 136590 MEAN 373 MAX 3230 MIN 28 AC-FT 270900

13351000 PALOUSE RIVER AT HOOPER, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years, 1959-71, 1974 to June 1980 (discontinued).
current year.
PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1961 to September 1971.
SUSPENDED SEDIMENT: October 1961 to September 1971.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1979								
23...	1125	95	460	8.3	11.6	30	8.0	10.3
NOV								
27...	1505	121	359	8.3	2.7	8	8.0	13.0
DEC								
18...	1040	178	390	7.2	3.4	8	10	12.1
JAN , 1980								
22...	1025	508	275	7.4	1.2	30	120	11.3
FEB								
27...	1055	860	310	7.9	7.2	--	190	11.1
MAR								
25...	1050	694	235	7.0	7.2	12	120	11.1
APR								
22...	1055	540	180	8.2	14.2	6	60	9.6
MAY								
29...	0915	1240	210	8.0	12.4	--	220	9.3
JUN								
24...	0915	354	275	8.1	19.0	--	45	8.0

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT , 1979							
23...	.96	.020	.02	.82	.200	.61	.230
NOV							
27...	2.1	.080	.10	.68	.590	1.8	.590
DEC							
18...	3.9	.040	.05	1.10	.310	.95	--
JAN , 1980							
22...	7.9	.150	.18	1.60	.260	.80	.230
FEB							
27...	--	--	--	1.10	--	--	.180
MAR							
25...	4.6	.130	.16	1.20	.270	.83	.140
APR							
22...	5.0	.360	.44	2.20	.910	2.8	.790
MAY							
29...	2.2	.090	.11	1.80	.360	1.1	.130
JUN							
24...	1.3	.060	.07	.67	.310	.95	.210

13351800 SPRAGUE LAKE NEAR SPRAGUE, WA

LOCATION.--Lat 47°16'47", long 118°01'26", in NE¼SE¼ sec.28, T.21 N., R.38 E., Lincoln County, Hydrologic Unit 17060108, on southeast shore 3.1 mi (5.0 km) southwest of Sprague.

DRAINAGE AREA.--289 mi^2 (749 km^2).

PERIOD OF RECORD.--September 1958 to September 1980 (discontinued). Prior to October 1960, published as Colville Lake near Sprague. Chemical analyses April 1975 to September 1975.

REVISED RECORDS.--WSP 1934: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1975, nonrecording gages at several sites, all at present datum except period Sept. 11, 1958 to Sept. 30, 1959, which was at datum 1,865.53 ft (568.614 m) higher.

REMARKS.--Some regulation by small dam at outlet. No known diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,881.93 ft (573.612 m) from high-water mark, occurred during the period Jan. 13-29, 1974; minimum observed, 1,875.14 ft (571.543 m) Nov. 2, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Lake reached an elevation at 1,881.75 ft (573.557 m) in March 1956 (from high-water mark).

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,879.58 ft (572.896 m) Apr. 28; minimum elevation, 1,877.59 ft (572.289 m) Oct. 18.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1877.70	1877.73	1877.82	1877.91	1878.17	1878.87	1879.26	1879.35	1879.13	1878.81	1878.44	1878.13
2	1877.69	1877.73	1877.87	1877.92	1878.21	1878.87	1879.23	1879.34	1879.10	1878.81	1878.43	1878.15
3	1877.68	1877.73	1877.87	1877.93	1878.27	1878.87	1879.24	1879.32	1879.08	1878.81	1878.40	1878.12
4	1877.67	1877.74	1877.92	1877.93	1878.30	1878.84	1879.24	1879.29	1879.07	1878.78	1878.38	1878.12
5	1877.67	1877.74	1877.91	1877.96	1878.31	1878.81	1879.27	1879.28	1879.06	1878.77	1878.37	1878.11
6	1877.66	1877.74	1877.90	1877.97	1878.33	1878.83	1879.30	1879.28	1879.04	1878.76	1878.34	1878.11
7	1877.66	1877.74	1877.90	1877.97	1878.34	1878.83	1879.26	1879.25	1879.02	1878.73	1878.32	1878.12
8	1877.65	1877.75	1877.90	1877.97	1878.35	1878.84	1879.25	1879.24	1879.00	1878.73	1878.29	1878.09
9	1877.62	1877.75	1877.92	1877.97	1878.37	1878.87	1879.28	1879.23	1879.01	1878.72	1878.30	1878.09
10	1877.63	1877.76	1877.92	1877.99	1878.38	1878.89	1879.27	1879.21	1879.00	1878.74	1878.29	1878.09
11	1877.63	1877.76	1877.90	1878.00	1878.38	1878.99	1879.25	1879.19	1878.99	1878.70	1878.27	1878.10
12	1877.63	1877.75	1877.92	1878.05	1878.40	1879.00	1879.24	1879.18	1878.99	1878.69	1878.26	1878.10
13	1877.63	1877.75	1877.90	1878.06	1878.40	1879.04	1879.24	1879.19	1879.00	1878.68	1878.25	1878.13
14	1877.63	1877.75	1877.96	1878.08	1878.41	1879.07	1879.26	1879.18	1878.99	1878.67	1878.25	1878.13
15	1877.63	1877.75	1877.89	1878.10	1878.41	1879.08	1879.26	1879.19	1878.98	1878.65	1878.24	1878.14
16	1877.62	1877.75	1877.87	1878.10	1878.43	1879.09	1879.22	1879.18	1878.97	1878.64	1878.22	1878.16
17	1877.62	1877.79	1877.88	1878.12	1878.44	1879.13	1879.25	1879.17	1878.97	1878.62	1878.22	1878.17
18	1877.62	1877.80	1877.90	1878.14	1878.51	1879.18	1879.26	1879.16	1878.95	1878.61	1878.26	1878.18
19	1877.70	1877.79	1877.91	1878.14	1878.62	1879.21	1879.28	1879.17	1878.94	1878.60	1878.27	1878.18
20	1877.69	1877.78	1877.91	1878.14	1878.72	1879.23	1879.30	1879.16	1878.92	1878.59	1878.27	1878.17
21	1877.69	1877.78	1877.91	1878.14	1878.77	1879.26	1879.34	1879.15	1878.92	1878.56	1878.26	1878.14
22	1877.68	1877.78	1877.92	1878.14	1878.78	1879.28	1879.35	1879.14	1878.94	1878.56	1878.25	1878.14
23	1877.69	1877.84	1877.90	1878.15	1878.78	1879.31	1879.36	1879.12	1878.93	1878.56	1878.25	1878.13
24	1877.68	1877.83	1877.91	1878.17	1878.78	1879.29	1879.42	1879.10	1878.90	1878.54	1878.23	1878.13
25	1877.72	1877.85	1877.92	1878.18	1878.79	1879.28	1879.42	1879.10	1878.91	1878.53	1878.21	---
26	1877.72	1877.85	1877.93	1878.17	1878.81	1879.29	1879.42	1879.15	1878.91	1878.52	1878.20	---
27	1877.73	1877.83	1877.92	1878.17	1878.84	1879.30	1879.42	1879.15	1878.89	1878.51	1878.21	---
28	1877.74	1877.80	1877.92	1878.17	1878.86	1879.30	1879.41	1879.14	1878.86	1878.49	1878.16	---
29	1877.73	1877.80	1877.91	1878.17	1878.87	1879.32	1879.40	1879.12	1878.86	1878.48	1878.15	---
30	1877.73	1877.81	1877.90	1878.17	---	1879.29	1879.36	1879.11	1878.84	1878.46	1878.14	---
31	1877.73	---	1877.91	1878.17	---	1879.28	---	1879.12	---	1878.44	1878.14	---
MEAN	1877.67	1877.78	1877.90	1878.07	1878.52	1879.09	1879.30	1879.19	1878.97	1878.64	1878.27	---
MAX	1877.74	1877.85	1877.96	1878.18	1878.87	1879.32	1879.42	1879.35	1879.13	1878.81	1878.44	---
MIN	1877.62	1877.73	1877.82	1877.91	1878.17	1878.81	1879.22	1879.10	1878.84	1878.44	1878.14	---

13353000 SNAKE RIVER BELOW ICE HARBOR DAM, WA

LOCATION.--Lat 46°14'53", long 118°52'43", in NE¼SW¼, sec.24, T.9 N., R.31 E., Walla Walla County, Hydrologic Unit 17060110, in powerhouse forebay pier P-1 on south side of Bay 1 at Ice Harbor Dam, 8.0 mi (12.9 km) northeast of Burbank, and at mile 9.7 (15.6 km).

DRAINAGE AREA.--108,500 mi^2 (281,000 km^2), approximately.

PERIOD OF RECORD.--October 1907 to March 1917 (gage heights only October 1907 to August 1909), March 1962 to current year. Published as "at Burbank" prior to 1911 and as "near Burbank" 1912-17. Chemical analyses October 1965 to September 1969, October 1971 to September 1972. For records collected at site 7.5 mi (12.1 km) downstream see station 13353200.

REVISED RECORDS.--WSP 1317: Drainage area.

GAGE.--Watt-hour meters on each turbine in Ice Harbor Dam powerhouse. Elevations are National Geodetic Vertical Datum of 1929. Oct. 2, 1907, to Mar. 31, 1917, nonrecording gage at site approximately 2 mi (3.2 km) downstream at datum 300 ft (91 m) higher. Mar. 23, 1962, to Sept. 30, 1968, water-stage recorder 1.0 mi (1.6 km) downstream National Geodetic Vertical Datum of 1929.

REMARKS.--Records computed from power output, flow over spillway, flow through fish ladder, and lockage records at Ice Harbor Dam. Diversions above station for irrigation of over 4,090,000 acres (16,600 km^2). Flow regulated by Lake Sacajawea and many storage reservoirs and powerplants upstream.

COOPERATION.--Records furnished by Corps of Engineers. Records not reviewed.

AVERAGE DISCHARGE.--25 years (water years 1910-16, 1963-80) 55,370 ft^3/s (1,570 m^3/s), 40,116,000 acre-ft/yr (49,500 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 312,000 ft^3/s (8,840 m^3/s) June 19, 1974; no flow momentarily Aug. 27, 1965 (result of testing at Ice Harbor Dam).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1948, reached an elevation of 361.9 ft (110.31 m) at a site 0.7 mi (1.1 km) downstream from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 163,000 ft^3/s (4,620 m^3/s) May 23; maximum forebay elevation, 440.55 ft (134.280 m) May 23; minimum discharge, 200 ft^3/s (5.66 m^3/s) part of each day on many days during year; minimum forebay elevation, 437.07 ft (133.219 m) May 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24600	37400	25900	11900	39200	38300	46100	118000	125000	71700	31700	11800
2	18000	26100	14900	29800	10000	23200	28700	99700	120000	61900	18400	27400
3	23900	12900	26600	26200	7700	29800	33600	104000	123000	56200	11300	32000
4	17600	10000	31400	35500	35500	37500	34000	102000	116000	33200	18600	24900
5	27300	26300	37900	21700	38400	42000	15000	113000	117000	63500	31200	26800
6	21200	21800	40800	9700	36700	46400	11500	121000	121000	52200	22500	21500
7	8800	21900	46000	26600	27700	52500	45000	134000	114000	69600	30700	11000
8	16600	20600	30500	37100	33600	26500	28300	116000	127000	54900	29500	29900
9	20100	21600	17800	42500	28900	37700	36000	102000	120000	62800	11800	22600
10	16500	14800	40700	46000	6100	44500	52500	107000	112000	59100	11800	24200
11	15800	8700	41500	54300	35200	38900	40700	103000	118000	59400	31800	22700
12	22000	24400	35700	32500	32100	36300	29700	96900	129000	27600	23300	28200
13	13100	34100	28600	8600	35300	40200	9100	83100	130000	18200	15000	30100
14	8700	43900	30600	25000	39700	29200	46100	74900	138000	45500	23800	24100
15	35000	24200	33200	47300	34900	14700	52700	75100	119000	37200	17100	38500
16	15900	17900	19500	38900	14600	18100	48900	97600	121000	42500	22300	17400
17	10900	16900	35700	44800	6700	50100	47100	102000	122000	32800	13300	21900
18	17600	20100	30600	43500	34000	42900	64400	79900	109000	37300	17800	38100
19	13600	42800	36000	29000	36300	33700	62800	74900	103000	32100	18500	20300
20	22700	34200	35500	13700	43800	39600	53500	106000	106000	19400	29500	28300
21	25300	31200	38800	33800	52400	43500	80200	104000	98500	39500	22900	21800
22	30500	16500	20100	39500	57100	33500	66500	126000	89100	37200	19600	27300
23	23400	36600	15100	48100	20900	8500	98600	136000	99700	43300	16200	50500
24	30500	28000	15000	21800	31700	45900	94400	127000	110000	34000	11500	35200
25	25200	12000	4000	34600	42800	53900	65000	102000	104000	29600	17400	21700
26	24900	36300	38200	30500	28600	44400	94900	116000	85000	14500	22300	34100
27	19800	42000	38200	22300	28900	38200	93700	119000	79500	24600	25800	41500
28	26100	37600	24900	49800	28800	37600	102000	133000	58700	30800	24300	20300
29	39900	38800	4500	46800	47000	32800	119000	120000	48800	27900	16400	32700
30	30800	42200	3100	46100	---	10200	127000	121000	63700	32500	11700	39100
31	21200	---	23600	39700	---	44100	---	132000	---	31000	11700	---
TOTAL	667500	801800	864900	1037600	913800	1114700	1727000	3346100	3227000	1282000	629700	825900
MEAN	21530	26730	27900	33470	31510	35960	57570	107900	107600	41350	20310	27530
MAX	39900	43900	46000	54300	57100	53900	127000	136000	138000	71700	31800	50500
MIN	8700	8700	3100	8600	6100	8500	9100	74900	48800	14500	11300	11000
AC-FT	1324000	1590000	1716000	2058000	1813000	2211000	3426000	6637000	6401000	2543000	1249000	1638000

CAL YR 1979 TOTAL 15192000 MEAN 41620 MAX 143000 MIN 2700 AC-FT 30130000
WTR YR 1980 TOTAL 16438000 MEAN 44910 MAX 138000 MIN 3100 AC-FT 32600000

13353200 SNAKE RIVER AT BURBANK, WA
(National stream-quality accounting network station)

LOCATION.--Lat 48°14'30", long 118°56'53", in SE¼SE¼ sec.21, T.9 N., R.31 E., Franklin County, Hydrologic Unit 17060110, at site 3.5 mi (5.3 km) below Ice Harbor Dam, 4 mi (6.4 km) northeast of Burbank, and at mi 6.2 (10.0 km).

DRAINAGE AREA.--108,800 mi^2 (281,800 km^2).

PERIOD OF RECORD.--Water years 1960-69, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1973 to September 1979 at site 4 mi (6.4 km) downstream.
WATER TEMPERATURES: April 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since March 1973.

REMARKS.--July 1960 to August 1962 at site 4.7 mi (7.6 km) downstream. September 1962 to September 1965 and February 1973 to September 1979 at site 4.0 mi (6.4 km) downstream. October 1965 to September 1969 and October 1971 to September 1972 at site 3.5 mi (5.6 km) upstream at south fish ladder of Ice Harbor Dam. Records published as "near Pasco" August 1962 to September 1963; and as "below Ice Harbor Dam, sta 13353000" October 1963 to September 1969 and October 1971 to September 1972.

COOPERATION.--Water-discharge values furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 476 micromhos Jan. 7, 1979; minimum, 60 micromhos June 14-15, 1978.
WATER TEMPERATURES: Maximum, 24.0°C Aug. 3, 7, 8, 1973, Aug. 4, 1974; minimum recorded, 0°C Jan. 26 to Feb. 5, 1979.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 22.0°C Aug. 10, 14-16; minimum, 1.0°C Jan. 30, 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	ACIDITY (MG/L AS CACO3)
OCT , 1979											
02...	1100	18000	244	7.8	19.6	2.2	7.3	11	13	82	--
NOV											
06...	1200	22000	321	7.8	13.7	2.7	8.9	3	6	106	--
DEC											
05...	1100	37000	347	7.9	8.0	2.2	10.4	2	120	118	--
JAN , 1980											
16...	1200	50000	274	7.8	3.7	6.3	11.3	<1	20	88	--
FEB											
12...	1200	44000	270	8.0	2.6	3.5	12.5	2	7	97	--
MAR											
04...	1200	54000	330	--	4.1	10	13.2	1	11	120	--
APR											
16...	1430	60000	206	7.4	9.1	13	10.8	<1	--	79	--
MAY											
12...	1130	98000	119	8.2	13.4	6.3	9.8	1	1	42	--
JUN											
12...	1500	129000	152	7.3	14.4	6.9	12.0	2	3	51	--
17...	1030	E122000	163	7.4	15.2	7.1	11.8	--	--	53	--
JUL											
15...	1600	51000	145	8.0	19.0	3.6	8.9	1	<1	51	--
AUG											
12...	1045	19000	152	7.9	21.8	2.6	7.8	3	4	55	--
SEP											
23...	1200	66000	225	8.1	19.0	4.3	7.7	1	2	68	.0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE FET-FLD (MG/L AS HCO3)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT , 1979											
02...	21	7.3	20	33	.9	3.0	--	88	2.2	26	9.8
NOV											
06...	26	10	28	35	1.2	4.0	--	100	2.5	39	13
DEC											
05...	29	11	28	33	1.1	3.4	--	120	2.4	35	12
JAN , 1980											
16...	22	8.2	20	32	.9	2.7	--	84	2.1	28	11
FEB											
12...	23	9.7	23	33	1.0	2.9	--	95	1.5	31	17
MAR											
04...	30	11	25	30	1.0	3.4	--	110	--	35	14
APR											
16...	20	7.1	16	29	.8	2.7	--	77	4.8	22	9.0
MAY											
12...	11	3.7	8.2	28	.5	1.5	--	40	.4	13	5.1
JUN											
12...	13	4.6	10	28	.6	1.8	--	49	3.9	16	6.4
17...	14	4.5	9.8	27	.6	2.0	--	57	3.6	15	6.3
JUL											
15...	14	4.1	8.4	25	.5	1.6	67	55	1.0	12	6.3
AUG											
12...	15	4.3	9.3	26	.5	1.6	64	53	1.2	14	5.1
SEP											
23...	18	5.7	14	29	.7	2.5	10	75	.1	21	8.6

— 13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)
OCT , 1979											
02...	.4	13	154	153	.20	7484	0	.28	.21	.010	.000
NOV											
06...	.5	19	207	200	.28	12296	4	.60	.58	.080	.080
DEC											
05...	.4	20	223	211	.30	22278	5	.69	.68	.030	.020
JAN , 1980											
16...	.3	19	175	162	.23	23625	8	.56	.58	.010	.070
FEB											
12...	.3	22	191	186	.26	22691	5	1.1	1.1	.100	.060
MAR											
04...	.4	24	225	209	.30	32805	36	1.2	1.1	.100	.040
APR											
16...	.3	24	159	147	.21	25758	6	.91	.90	.060	.020
MAY											
12...	.2	14	87	80	.11	23020	33	.16	.16	.030	.030
JUN											
12...	--	14	101	96	.13	35178	10	.18	.22	.010	.040
17...	.3	12	102	98	.13	--	--	.32	.15	.690	.030
JUL											
15...	.4	12	93	91	.12	12806	18	.05	.05	.010	.010
AUG											
12...	.3	12	101	93	.13	5181	23	.08	.07	.050	.050
SEP											
23...	.4	13	130	88	.17	23166	1	.00	.00	.100	.090

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHATE, TOTAL (MG/L AS PO4)
OCT , 1979											
02...	.01	.00	.30	.22	.31	.09	.22	.59	2.6	.050	--
NOV											
06...	.10	.10	.46	.44	.54	.02	.52	1.1	5.0	.050	--
DEC											
05...	.04	.02	.46	.42	.49	.05	.44	1.1	5.2	.030	--
JAN , 1980											
16...	.01	.09	.99	.29	1.00	.64	.36	1.5	6.9	.040	--
FEB											
12...	.12	.07	.40	.36	.50	.08	.42	1.6	7.0	.040	--
MAR											
04...	.12	.05	.57	.49	.67	.14	.53	1.8	8.2	.120	--
APR											
16...	.07	.02	.46	.50	.52	.00	.52	1.4	6.3	.090	--
MAY											
12...	.04	.03	.41	.36	.44	.05	.39	.60	2.6	.040	--
JUN											
12...	.01	.05	.36	.54	.37	.00	.58	.55	2.4	.050	--
17...	.03	.03	1.9	.43	2.70	2.2	.46	3.0	13	.030	--
JUL											
15...	.01	.01	.86	.42	.87	.44	.43	.92	4.0	.020	--
AUG											
12...	.06	.06	.33	.32	.38	.01	.37	.46	2.0	.020	.03
SEP											
23...	.12	.11	.72	.35	.82	.38	.44	.82	3.6	.020	.09

13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS- PHORUS TOTAL (MG/L AS PO4)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1979											
02...	.15	.030	--	--	--	--	8.4	1.7	7	340	73
NOV											
06...	.15	.060	--	--	--	4.9	--	--	6	356	--
DEC											
05...	.09	.050	--	--	--	5.9	--	--	9	899	--
JAN , 1980											
16...	.12	.040	--	--	--	--	5.8	.1	8	1000	--
FEB											
12...	.12	.020	--	--	--	4.7	--	--	9	1060	--
MAR											
04...	.37	.060	--	--	--	6.3	--	--	46	6707	97
APR											
16...	.20	.060	--	--	--	--	3.2	.2	13	2106	--
MAY											
12...	.12	.020	--	--	--	6.2	--	--	16	4236	--
JUN											
12...	.15	.020	--	--	--	6.1	--	--	10	6269	97
17...	.09	.010	--	--	--	--	--	--	--	--	--
JUL											
15...	.06	.010	--	--	--	--	6.5	--	7	964	--
AUG											
12...	.06	.008	.010	.010	.03	3.9	--	--	6	275	--
SEP											
23...	.06	.030	.030	.030	.09	5.7	--	--	9	1004	--

RADIOCHEMICAL ANALYSES

DATE	TIME	GROSS ALPHA, DIS- SOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)
NOV , 1979								
06...	1200	2.3	<.3	3.8	.6	3.0	.7	2.7
MAY , 1980								
12...	1130	1.6	<.8	1.0	2.3	1.7	2.3	1.0

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDED TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDED RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)
OCT , 1979										
02...	1100	4	1	3	0	0	40	0	0	<1
DEC										
05...	1100	--	--	--	--	--	--	--	--	--
JAN , 1980										
16...	1200	5	1	4	200	200	30	0	0	<1
MAR										
04...	1200	--	--	--	--	--	--	--	--	--
APR										
16...	1430	4	2	2	100	70	30	0	0	1
JUN										
12...	1500	--	--	--	--	--	--	--	--	--
17...	1030	3	0	3	0	0	20	1	0	2
JUL										
15...	1600	3	0	3	0	0	30	0	--	<1
AUG										
12...	1045	3	0	3	100	60	40	0	0	3
SEP										
23...	1200	4	0	4	0	0	30	1	0	3

13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT , 1979										
02...	0	0	10	0	0	<3	1	0	1	220
DEC										
05...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
16...	20	20	0	1	0	<3	15	15	0	400
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
16...	0	0	0	0	--	<3	14	11	3	760
JUN										
12...	--	--	--	--	--	--	--	--	--	--
17...	0	0	0	0	--	<3	3	--	<10	480
JUL										
15...	0	0	0	20	--	<3	0	0	4	290
AUG										
12...	10	0	10	0	--	<3	4	2	2	220
SEP										
23...	10	10	0	1	--	<3	9	7	2	430

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)
OCT , 1979										
02...	180	40	4	1	3	20	20	3	.0	.0
DEC										
05...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
16...	370	30	12	12	0	30	30	4	.1	.0
MAR										
04...	--	--	--	--	--	--	--	--	--	--
APR										
16...	690	70	15	12	3	40	30	9	.1	.0
JUN										
12...	--	--	--	--	--	--	--	--	--	--
17...	430	46	5	--	<10	30	30	5	.0	.0
JUL										
15...	270	20	20	20	0	20	--	<1	.2	.1
AUG										
12...	160	60	2	2	0	10	2	8	.2	.1
SEP										
23...	400	30	4	3	1	30	30	5	.3	.2

DATE	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT , 1979										
02...	.0	0	0	0	0	0	0	0	0	<3
DEC										
05...	--	--	--	--	0	--	--	--	--	--
JAN , 1980										
16...	.1	0	0	0	0	0	0	0	0	<3
MAR										
04...	--	--	--	--	0	--	--	--	--	--
APR										
16...	.1	0	0	0	0	0	0	50	--	<3
JUN										
12...	--	--	--	--	0	--	--	--	--	--
17...	.0	0	0	0	0	0	0	30	--	<3
JUL										
15...	.1	0	0	0	0	0	0	20	--	<3
AUG										
12...	.1	0	0	0	0	0	0	10	0	20
SEP										
23...	.1	0	0	0	1	1	0	60	50	7

SNAKE RIVER BASIN

13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	NOV 6,79 1200	MAR 4,80 1200	MAY 12,80 1130	JUN 12,80 1500
TOTAL CELLS/ML	920	450	1300	640
DIVERSITY: DIVISION	1.1	1.4	1.3	0.7
.CLASS	1.1	1.4	1.3	0.7
..ORDER	1.1	1.9	2.0	1.3
...FAMILY	1.6	2.3	2.0	1.5
....GENUS	2.2	2.5	2.7	2.1

ORGANISMS	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	5	1	--	-	--	-
...COELASTRACEAE								
....COELASTRUM	470#	52	--	-	--	-	--	-
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	20	5	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	14	2	5	1	65	5	--	-
....CHODATELLA	14	2	--	-	13	1	13	2
....OOCYSTIS	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	13	1	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	13	1	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	57	6	30	7	--	-	52	8
....TETRASTRUM	110	13	20	5	--	-	52	8
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	39	3	13	2
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	100	11	230#	52	20	2	--	-
....MELOSIRA	72	8	--	-	230#	18	77	12
....STEPHANODISCUS	--	-	--	-	270#	21	360#	56
..PENNALES								
...DIATOMACEAE								
....DIATOMA	--	-	5	1	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	40	9	270#	21	52	8
....SYNEDRA	--	-	10	2	--	-	--	-
...NAVICULACEAE								
....NAVICULA	--	-	--	-	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	5	1	--	-	26	4
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	13	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	72	8	--	-	--	-	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....APHANIZOMENON	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	310#	24	--	-
....SCHIZOTHRIX	--	-	56	13	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	5	1	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	10	2	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

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13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 15,80 1600	AUG 12,80 1045	SEP 23,80 1200
TOTAL CELLS/ML	1200	2600	290
DIVERSITY: DIVISION	1.4	1.6	1.2
.CLASS	1.4	1.6	1.2
..ORDER	1.6	1.9	1.8
...FAMILY	1.8	2.2	1.8
....GENUS	2.5	2.5	2.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....CHLOROCOCCUM	--	-	--	-	--	-
...COELASTRACEAE						
....COELASTRUM	--	-	180	7	--	-
...HYDRODICTYACEAE						
....PEDIASTRUM	--	-	190	7	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	52	4	39	1	--	-
....CHODATELLA	13	1	*	0	--	-
....OOCYSTIS	--	-	100	4	--	-
....SELENASTRUM	13	1	--	-	--	-
....TETRAEDRON	--	-	*	0	--	-
....TREUBARIA	--	-	--	-	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	52	4	--	-	26	9
....TETRASTRUM	150	13	52	2	52#	18
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	39	14
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	550#	46	130	5	120#	41
....MELOSIRA	190#	16	960#	37	26	9
....STEPHANODISCUS	--	-	--	-	--	-
..PENNALES						
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
...FRAGILARIACEAE						
....ASTERIONELLA	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-
...NAVICULACEAE						
....NAVICULA	13	1	*	0	13	5
...NITZSCHIACEAE						
....NITZSCHIA	13	1	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	39	3	*	0	13	5
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	90	8	77	3	--	-
..HORMOGONALES						
...NOSTOCACEAE						
....APHANIZOMENON	--	-	840#	32	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	--	-
....SCHIZOTHRIX	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	13	1	--	-	--	-

NOTE: # = DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
 * = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

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13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)
OCT , 1979					
30...	[illegible]	[illegible]	[illegible]	32.0	[illegible]
MAR , 1980					
12...	[illegible]	[illegible]	[illegible]	.000	.000
JUN					
10...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AUG					
19...	[illegible]	[illegible]	[illegible]	.250	.110

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	20.5	19.5	20.0	15.0	14.5	14.5	8.0	8.0	8.0	5.5	5.0	5.0
2	20.0	19.5	19.5	14.5	14.0	14.5	8.0	8.0	8.0	5.5	5.0	5.0
3	20.0	19.0	19.5	14.5	14.0	14.0	8.0	8.0	8.0	5.5	5.0	5.0
4	20.0	19.0	19.5	14.5	14.0	14.0	8.0	8.0	8.0	5.0	5.0	5.0
5	19.5	19.0	19.5	14.0	14.0	14.0	8.0	7.5	8.0	5.0	5.0	5.0
6	19.5	18.5	19.0	14.0	13.5	14.0	8.0	7.5	7.5	5.0	4.5	4.5
7	19.0	19.0	19.0	13.5	13.5	13.5	7.5	7.5	7.5	4.5	4.0	4.5
8	19.0	18.5	19.0	13.5	13.0	13.5	7.5	7.5	7.5	4.5	4.0	4.5
9	19.0	18.0	18.5	13.5	13.0	13.0	7.5	7.5	7.5	4.0	3.5	4.0
10	19.0	18.0	18.5	13.0	12.5	13.0	7.5	7.0	7.0	4.0	3.5	3.5
11	19.0	18.0	18.5	13.0	12.0	12.5	7.0	7.0	7.0	3.5	3.0	3.5
12	19.0	18.0	18.5	12.5	12.0	12.0	7.0	6.5	7.0	3.5	3.5	3.5
13	18.5	18.0	18.0	12.5	12.0	12.5	6.5	6.5	6.5	4.0	3.5	3.5
14	18.5	18.0	18.0	12.0	12.0	12.0	6.5	6.5	6.5	4.0	3.5	3.5
15	18.5	18.0	18.0	12.0	11.5	11.5	6.5	6.0	6.5	3.5	3.5	3.5
16	18.0	17.5	18.0	11.5	11.0	11.5	6.0	6.0	6.0	4.0	3.5	3.5
17	18.0	17.5	17.5	11.0	11.0	11.0	6.0	6.0	6.0	4.0	3.5	4.0
18	17.5	17.0	17.5	11.0	11.0	11.0	6.0	6.0	6.0	4.0	3.5	4.0
19	17.5	16.5	17.0	11.0	11.0	11.0	6.0	6.0	6.0	4.0	3.5	3.5
20	17.0	16.5	16.5	11.0	10.5	10.5	6.0	6.0	6.0	3.5	3.5	3.5
21	17.0	16.5	16.5	10.5	10.0	10.5	6.0	6.0	6.0	3.5	3.5	3.5
22	16.5	16.5	16.5	10.0	10.0	10.0	6.0	5.5	6.0	3.5	3.0	3.0
23	16.5	16.0	16.5	10.0	9.5	10.0	6.0	5.5	5.5	3.0	3.0	3.0
24	16.0	16.0	16.0	10.0	9.5	9.5	5.5	5.5	5.5	3.0	2.5	3.0
25	16.0	15.5	15.5	9.5	9.5	9.5	6.0	5.5	5.5	3.0	2.5	2.5
26	16.0	15.5	15.5	9.5	9.0	9.5	5.5	5.5	5.5	2.5	2.0	2.5
27	15.5	15.5	15.5	9.5	9.0	9.0	5.5	5.5	5.5	2.5	2.0	2.0
28	15.5	15.5	15.5	9.0	8.5	9.0	5.5	5.5	5.5	2.5	2.0	2.0
29	15.5	15.0	15.5	8.5	8.5	8.5	5.5	5.0	5.5	2.0	1.5	1.5
30	15.5	15.0	15.0	8.5	8.0	8.5	5.0	5.0	5.0	1.5	1.0	1.5
31	15.0	14.5	15.0	---	---	---	5.5	5.0	5.0	1.5	1.0	1.0
MONTH	20.5	14.5	17.5	15.0	8.0	11.5	8.0	5.0	6.5	5.5	1.0	3.5

SNAKE RIVER BASIN

13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1.5	1.0	1.5	4.0	3.5	3.5	7.0	6.5	7.0	12.5	12.0	12.5
2	1.5	1.5	1.5	4.0	3.5	4.0	7.5	6.5	7.0	12.0	12.0	12.0
3	2.0	1.5	1.5	4.0	4.0	4.0	8.0	7.0	7.5	12.5	12.0	12.0
4	2.0	1.5	1.5	4.5	4.0	4.0	8.0	7.5	7.5	12.5	12.0	12.5
5	1.5	1.5	1.5	4.0	4.0	4.0	8.5	8.0	8.0	13.0	12.5	12.5
6	2.0	1.5	2.0	4.5	4.0	4.5	8.0	7.5	7.5	13.0	12.5	13.0
7	2.0	2.0	2.0	4.5	4.5	4.5	8.0	7.5	7.5	12.5	12.0	12.5
8	2.5	2.0	2.0	5.0	4.5	4.5	8.0	7.5	8.0	12.5	12.0	12.0
9	2.5	2.5	2.5	4.5	4.5	4.5	8.5	8.0	8.0	13.0	12.0	12.5
10	2.5	2.5	2.5	5.0	4.5	4.5	8.5	8.0	8.0	13.0	13.0	13.0
11	2.5	2.5	2.5	5.5	5.0	5.0	9.0	8.0	8.5	13.5	13.0	13.5
12	2.5	2.5	2.5	5.5	5.0	5.0	9.0	8.5	8.5	13.5	13.0	13.5
13	2.5	2.5	2.5	5.5	5.0	5.5	10.0	8.5	9.0	14.0	13.5	13.5
14	2.5	2.0	2.0	5.5	5.0	5.5	9.5	8.5	9.0	13.5	13.0	13.5
15	2.0	2.0	2.0	5.5	5.0	5.5	9.5	9.0	9.0	13.5	13.0	13.0
16	2.5	2.0	2.0	6.0	5.0	5.5	9.5	9.0	9.5	13.0	12.5	13.0
17	2.5	2.0	2.0	5.5	5.5	5.5	10.0	9.5	9.5	13.0	12.5	13.0
18	2.5	2.0	2.0	6.0	5.5	5.5	9.5	9.5	9.5	13.0	12.5	12.5
19	2.5	2.0	2.0	6.0	5.5	6.0	10.0	9.5	10.0	13.0	12.5	12.5
20	2.5	2.0	2.0	6.0	6.0	6.0	10.0	10.0	10.0	13.0	12.5	12.5
21	2.5	2.0	2.0	6.5	6.0	6.0	10.0	10.0	10.0	13.5	13.0	13.0
22	2.5	2.0	2.0	6.5	6.0	6.5	11.0	10.0	10.5	13.5	13.5	13.5
23	2.5	2.0	2.5	6.5	6.0	6.5	11.0	10.5	10.5	14.0	13.5	13.5
24	2.5	2.0	2.5	6.5	6.0	6.5	11.0	10.5	11.0	13.5	13.0	13.0
25	2.5	2.5	2.5	6.5	6.0	6.5	11.5	11.0	11.0	13.0	13.0	13.0
26	3.0	2.5	3.0	7.0	6.5	6.5	12.0	11.5	11.5	13.5	13.0	13.0
27	3.0	3.0	3.0	7.0	6.5	6.5	12.5	12.0	12.0	13.5	13.5	13.5
28	3.5	3.0	3.5	6.5	6.5	6.5	13.0	12.0	12.5	14.0	13.5	14.0
29	3.5	3.0	3.5	6.5	6.5	6.5	13.0	12.5	13.0	13.5	13.0	13.5
30	---	---	---	7.0	6.5	6.5	12.5	12.5	12.5	13.0	12.5	13.0
31	---	---	---	7.0	6.5	7.0	---	---	---	12.5	12.0	12.5
MONTH	3.5	1.0	2.0	7.0	3.5	5.5	13.0	6.5	9.5	14.0	12.0	13.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.0	11.5	12.0	17.5	17.0	17.5	21.5	21.0	21.0	21.0	20.0	20.5
2	11.5	11.5	11.5	17.5	17.5	17.5	21.5	21.0	21.0	20.5	20.0	20.5
3	12.0	11.5	12.0	18.0	17.0	17.5	22.0	20.5	21.5	20.5	20.0	20.5
4	13.0	12.0	12.5	17.5	17.0	17.5	22.0	21.0	21.5	20.5	20.0	20.0
5	13.5	13.0	13.5	17.5	17.0	17.5	21.5	21.0	21.5	20.5	20.0	20.0
6	13.5	13.5	13.5	18.0	17.0	17.5	21.5	21.0	21.5	20.5	19.5	20.0
7	14.0	13.5	14.0	18.0	17.0	17.5	21.5	21.0	21.5	20.5	19.5	20.0
8	14.5	14.0	14.0	18.0	17.5	17.5	21.5	21.0	21.5	20.5	19.5	20.0
9	14.5	14.0	14.0	18.0	17.5	17.5	22.0	21.0	21.5	20.5	20.0	20.0
10	14.0	14.0	14.0	18.5	17.5	18.0	22.0	21.0	21.5	20.0	20.0	20.0
11	14.5	14.0	14.0	18.5	18.0	18.0	22.0	21.0	21.5	20.5	20.0	20.0
12	14.5	14.5	14.5	19.0	18.0	18.5	22.0	21.0	21.5	20.5	20.0	20.0
13	14.5	14.0	14.5	19.0	18.0	18.5	22.0	21.5	21.5	20.0	20.0	20.0
14	14.5	14.5	14.5	19.0	18.5	18.5	22.0	21.5	22.0	20.0	19.5	20.0
15	15.0	14.5	15.0	19.5	18.5	19.0	22.0	21.5	21.5	20.0	19.5	19.5
16	15.5	15.0	15.5	19.5	19.0	19.0	22.0	21.5	22.0	20.0	19.5	19.5
17	16.0	15.5	15.5	19.5	19.0	19.5	22.0	21.5	22.0	20.0	19.5	19.5
18	16.0	15.5	16.0	20.0	19.0	19.0	22.0	21.5	21.5	19.5	19.5	19.5
19	16.0	15.5	16.0	19.5	19.0	19.5	22.0	21.5	21.5	19.5	19.0	19.5
20	16.0	15.5	15.5	20.5	19.0	19.5	21.5	21.0	21.5	19.5	19.0	19.5
21	16.0	15.5	16.0	20.0	19.5	20.0	21.5	21.0	21.0	19.5	19.0	19.0
22	16.0	15.5	16.0	20.5	19.5	20.0	21.5	21.0	21.0	19.0	19.0	19.0
23	15.5	15.5	15.5	20.5	19.5	20.0	21.5	21.0	21.0	19.0	18.5	19.0
24	15.5	15.5	15.5	20.5	20.0	20.5	21.5	21.0	21.0	19.0	18.5	18.5
25	16.0	15.5	15.5	21.0	20.0	20.5	22.0	21.0	21.5	19.0	18.5	18.5
26	16.0	16.0	16.0	21.5	20.5	20.5	22.0	21.0	21.5	19.0	18.5	18.5
27	16.5	16.0	16.0	21.0	20.0	20.5	21.5	21.0	21.0	19.0	18.5	18.5
28	17.0	16.0	16.5	21.0	20.5	21.0	21.5	21.0	21.0	18.5	18.0	18.5
29	17.5	16.5	17.0	21.0	20.5	21.0	21.5	21.0	21.0	18.5	18.0	18.5
30	17.5	16.5	17.0	21.5	20.5	21.0	21.5	20.5	21.0	18.5	18.0	18.0
31	---	---	---	21.5	21.0	21.5	21.5	20.5	20.5	---	---	---
MONTH	17.5	11.5	15.0	21.5	17.0	19.0	22.0	20.5	21.5	21.0	18.0	19.5
YEAR	22.0	1.0	12.0									

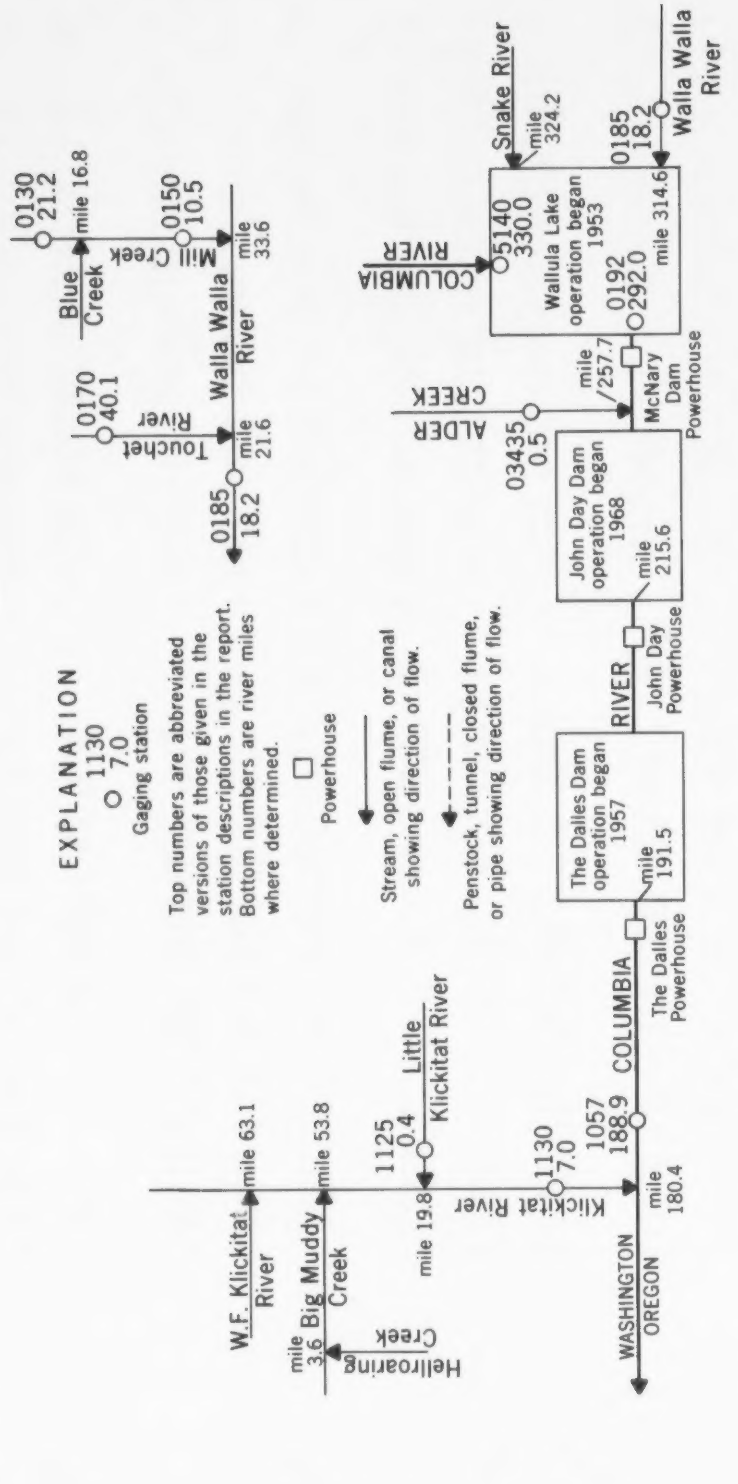
EXPLANATION
1130
7.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
0130
21.2
mile 16.8
Blue Creek
Mill Creek
0150
10.5
mile 33.6
0170
40.1
Touchet River
mile 21.6
Walla Walla River
0185
18.2
Snake River
mile 324.2
0185
18.2
Walla Walla River
COLUMBIA RIVER
5140
330.0
Wallula Lake operation began 1953
0192
292.0
mile 314.6
ALDER CREEK
03435
0.5
mile 257.7
McNary Dam Powerhouse
John Day Dam operation began 1968
mile 215.6
John Day Powerhouse
The Dalles Dam operation began 1957
mile 191.5
The Dalles Powerhouse
COLUMBIA
RIVER
W.F. Klickitat River
mile 63.1
Big Muddy Creek
mile 53.8
Hellroaring Creek
mile 3.6
1125
0.4
Little Klickitat River
mile 19.8
Klickitat River
1130
7.0
1057
188.9
mile 180.4
WASHINGTON
OREGON

Figure 18. Gaging stations in Columbia River basin between Wallula Lake and Klickitat River.

14013000 MILL CREEK NEAR WALLA WALLA, WA

LOCATION.--Lat 46°00'29", long 118°07'03", in SW¼SW¼ sec.7, T.6 N., R.38 E., Walla Walla County, Hydrologic Unit 17070102, on left bank, 0.1 mi (0.2 km) downstream from Railroad Canyon, 4.0 mi (6.4 km) downstream from city of Walla Walla diversion dam, 4.4 mi (7.1 km) upstream from Blue Creek, 11.5 mi (18.5 km) southeast of Walla Walla, and at mile 21.2 (34.1 km).

DRAINAGE AREA.--59.6 mi^2 (154.4 km^2).

PERIOD OF RECORD.--August 1913 to September 1917, April to September 1938, October 1939 to September 1976, October 1979 to current year. Maximum discharge and occasional discharge measurements 1977-79. Water temperatures March 1962 to July 1965, sediment records March 1962 to July 1965.

REVISED RECORDS.--WSP 1398: 1946-48(M), 1950(M). WSP 1935: 1959, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,995.85 ft (608.335 m) above mean sea level (levels by Corps of Engineers). Prior to Oct. 1, 1938, nonrecording gages at about same site at different datums.

REMARKS.--Records good. No regulation. City of Walla Walla diverts about 22 ft^3/s (0.62 m^3/s) 4.0 mi (6.4 km) above station for municipal use.

AVERAGE DISCHARGE.--42 years (water years, 1914-17, 1940-76, 1980) 98.8 ft^3/s (2.798 m^3/s), 71,580 acre-ft/yr. (88.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,240 ft^3/s (91.8 m^3/s) Dec. 23, 1964, gage height, 19.26 ft (5.870 m); minimum daily, 9.5 ft^3/s (0.27 m^3/s) Dec. 9, 10, 1972.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 700 ft^3/s (19.8 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 14	2330	*427	12.1	*15.76	4.804

Minimum daily discharge, 21 ft^3/s (0.59 m^3/s) Aug. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	29	30	53	24	168	91	108	110	41	24	27
2	26	28	49	57	26	140	91	104	108	41	24	30
3	26	28	86	68	45	128	87	104	106	39	24	28
4	26	27	223	70	54	130	86	104	102	38	24	26
5	26	27	183	267	53	114	97	124	93	38	24	25
6	26	27	126	220	60	117	121	112	87	36	24	25
7	26	28	87	148	70	148	114	95	82	36	23	25
8	26	28	71	100	70	140	102	89	75	35	23	24
9	26	28	67	80	68	135	119	95	71	36	22	23
10	26	28	84	65	65	130	155	89	67	41	22	24
11	26	27	70	56	62	127	160	84	63	36	22	25
12	26	27	63	85	59	124	152	78	70	35	22	24
13	26	26	57	246	57	119	155	75	87	33	22	37
14	26	26	54	344	53	143	190	73	82	33	22	30
15	28	26	54	352	49	158	202	75	77	33	22	27
16	28	26	56	234	46	138	179	70	71	33	21	26
17	27	32	57	247	51	126	184	67	67	32	21	25
18	31	41	63	196	107	117	184	65	63	32	35	26
19	49	35	63	140	243	104	182	63	59	32	29	28
20	36	32	63	106	285	104	179	60	54	31	25	29
21	35	31	62	87	230	112	179	60	51	28	23	29
22	32	33	63	75	171	124	168	60	51	26	23	28
23	31	47	59	68	133	133	148	59	51	26	22	26
24	46	43	57	58	112	128	138	56	49	26	22	26
25	53	41	56	54	102	112	126	62	47	24	22	26
26	53	39	56	50	110	102	126	168	51	24	25	25
27	30	35	53	45	140	95	130	165	50	24	26	25
28	31	33	51	35	179	89	128	148	47	24	26	24
29	31	31	49	29	190	89	145	135	42	24	26	24
30	31	30	46	25	---	91	121	119	42	24	26	23
31	30	---	46	24	---	91	---	104	---	24	27	---
TOTAL	966	939	2204	3684	2914	3776	4239	2870	2075	985	743	790
MEAN	31.2	31.3	71.1	119	100	122	141	92.6	69.2	31.8	24.0	26.3
MAX	53	47	223	352	285	168	202	168	110	41	35	37
MIN	26	26	30	24	24	89	86	56	42	24	21	23
AC-FT	1920	1860	4370	7310	5780	7490	8410	5690	4120	1950	1470	1570

WTR YR 1980 TOTAL 26185 MEAN 71.5 MAX 352 MIN 21 AC-FT 51940

14015000 MILL CREEK AT WALLA WALLA, WA

LOCATION.--Lat 46°04'35", long 118°16'21", in NE¼NW¼ sec.23, T.7 N., R.36 E., Walla Walla County, Hydrologic Unit 17070102, on left bank, 200 ft (61 m) downstream from diversion dam, 1.5 mi (2.4 km) east of Walla Walla, and at mile 10.5 (16.9 km).

DRAINAGE AREA.--95.7 mi² (247.9 km²).

PERIOD OF RECORD.--April 1941 to current year.

REVISED RECORDS.--WSP 1288: Drainage area. WSP 1348: 1943, 1945-46.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,165.49 ft (355.241 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). April 1941 to June 11, 1941, nonrecording gage and June 11, 1941, to Jan. 22, 1957, water-stage recorder, at sites 0.8 mi (1.3 km) downstream at different datum.

REMARKS.--Records good except those below 20 ft³/s (0.57 m³/s), which are poor. Some regulation at diversion dam 200 ft (61 m) upstream from station where water is diverted into Yellowhawk and Garrison Creeks for stock and irrigation. Since Nov. 19, 1941, water has been diverted 1.0 mi (1.6 km) upstream into Mill Creek Reservoir for flood control with release of stored water after flood into Russell Creek, and is also diverted as required to replenish losses from seepage and evaporation from small recreation pool maintained in the reservoir. City of Walla Walla diverts water for municipal supply about 11 mi (18 km) upstream. Other small diversions above station for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 ft³/s (78.2 m³/s) Dec. 28, 1945, gage height, 4.0 ft (1.22 m), site and datum then in use; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 682 ft³/s (19.3 m³/s) Jan. 14, gage height, 3.59 ft (1.094 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	2.0	3.3	22	35	204	89	65	79	.08	.01	.09
2	.45	2.0	19	31	45	175	81	55	72	.00	.00	.06
3	.47	2.0	75	54	55	155	79	39	65	.00	.00	.08
4	.56	2.0	231	57	58	157	71	27	63	.00	.01	.11
5	.55	2.0	272	327	74	153	67	27	55	.00	.00	.16
6	.51	2.0	147	324	64	143	69	53	47	.00	.00	.09
7	.36	2.0	92	217	95	126	67	50	43	.02	.02	.06
8	.36	2.2	62	158	82	114	67	38	38	.00	.00	.06
9	.30	2.0	47	112	79	112	114	34	27	.00	.02	.02
10	.34	1.8	70	95	77	114	154	36	19	.01	.00	.00
11	.42	1.0	61	85	73	160	154	27	15	.12	.00	.00
12	.35	1.0	48	125	69	158	150	18	28	.02	.00	.00
13	.37	1.0	33	405	67	154	152	9.2	55	.09	.00	.02
14	.28	1.0	21	576	64	213	186	4.9	50	.00	.00	.00
15	.11	1.0	23	545	61	256	213	14	45	.04	.00	.00
16	.12	1.0	25	354	58	229	185	14	30	.04	.00	.01
17	.14	1.0	29	354	62	189	185	5.7	19	.05	.00	.00
18	.12	4.3	42	287	140	170	183	2.9	20	.05	.00	.00
19	11	9.2	41	208	323	151	175	2.1	10	.10	.00	.00
20	11	7.4	39	159	420	143	176	.90	12	.15	.00	.00
21	4.1	2.7	35	110	360	167	179	.31	10	.12	.00	.00
22	2.1	2.4	49	90	264	185	158	.16	8.3	.12	.00	.00
23	1.5	19	34	67	201	217	135	.13	5.9	.04	.00	.00
24	1.5	23	30	55	167	189	118	.12	.15	.01	.00	.00
25	6.9	18	35	41	144	150	102	18	.08	.00	.00	.00
26	13	17	33	36	152	129	94	150	.08	.17	.00	.00
27	3.5	10	28	33	183	110	94	131	10	.43	.00	.00
28	2.4	6.3	25	32	225	97	103	119	12	.18	.00	.00
29	2.7	3.2	22	30	231	92	121	106	.97	.03	.02	.00
30	2.0	3.3	16	29	---	90	100	88	.52	.00	.02	.00
31	2.0	---	15	31	---	92	---	72	---	.00	.05	---
TOTAL	70.11	152.8	1702.3	5049	3928	4794	3821	1207.42	840.00	1.87	.15	.76
MEAN	2.26	5.09	54.9	163	135	155	127	38.9	28.0	.060	.005	.025
MAX	13	23	272	576	420	256	213	150	79	.43	.05	.16
MIN	.11	1.0	3.3	22	35	90	67	.12	.08	.00	.00	.00
AC-FT	139	303	3380	10010	7790	9510	7580	2390	1670	3.7	.3	1.5

CAL YR 1979 TOTAL 27149.19 MEAN 74.4 MAX 934 MIN .11 AC-FT 53850
WTR YR 1980 TOTAL 21567.41 MEAN 58.9 MAX 576 MIN .00 AC-FT 42780

14017000 TOUCHET RIVER AT BOLLES, WA

LOCATION.--Lat 46°16'28", long 118°13'13", on line between secs.7 and 8, T.9 N., R.37 E., Walla Walla County, Hydrologic Unit 17070102, on right bank just downstream from bridge on State Highway 124, 0.4 mi (0.6 km) southeast of Bolles, 2.9 mi (4.7 km) downstream from Coppei Creek, and at mile 40.1 (64.5 km).

DRAINAGE AREA.--361 mi^2 (935 km^2).

PERIOD OF RECORD.--February 1924 to October 1929, April 1951 to current year. Monthly discharge only for February and March 1929, published in WSP 1318. Chemical analyses October 1973 to September 1975, sediment records July 1962 to September 1965 (partial-record station).

REVISED RECORDS.--WSP 1448: 1952-53(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder (correction). Altitude of gage is 1,150 ft (351 m), from topographic map. Prior to Oct. 5, 1929, water-stage recorder at site 0.5 mi (0.8 km) upstream at different datum. April 1 to May 6, 1951, October 1968 to September 1974, nonrecording gage.

REMARKS.--Records good. Diurnal fluctuation and some regulation at low flow caused by operation of flour mill at Waitsburg 3 mi (5 km) upstream. Numerous small diversions for municipal and domestic use and for irrigation.

AVERAGE DISCHARGE.--34 years (water years 1925-29, 1952-80), 231 ft^3/s (6.542 m^3/s) 167,400 acre-ft/yr (206 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,350 ft^3/s (265 m^3/s) Dec. 23, 1964, gage height, 14.06 ft (4.285 m), from rating curve extended above 3,800 ft^3/s (108 m^3/s) on basis of slope-area measurement of peak flow; minimum, 1.4 ft^3/s (0.040 m^3/s) July 30, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft^3/s (42.5 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 14	2200	2,090	59.2	*6.23	1.899

Minimum daily discharge 29 ft^3/s (0.82 m^3/s) Aug. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	64	70	124	110	474	295	300	240	84	35	42
2	39	63	115	144	170	428	279	314	232	79	36	47
3	40	62	215	174	300	393	271	301	213	79	39	48
4	39	63	455	177	249	393	261	277	204	76	39	43
5	39	66	442	566	207	380	266	274	200	77	34	40
6	37	64	268	450	221	352	309	325	201	75	35	40
7	40	64	205	300	237	335	303	301	183	70	35	39
8	42	64	174	250	213	341	280	261	175	64	32	37
9	44	62	155	210	205	334	317	305	161	73	35	36
10	47	60	219	180	200	322	385	292	151	78	32	34
11	48	60	190	190	192	478	375	264	143	72	30	38
12	44	60	171	586	183	423	358	239	156	68	31	36
13	46	60	154	1150	178	436	367	255	241	67	30	72
14	45	60	141	1750	174	642	426	225	201	62	30	71
15	54	60	134	1440	158	724	484	274	194	61	29	57
16	57	60	135	958	154	621	455	255	180	56	30	51
17	57	72	127	918	170	550	424	231	171	53	32	46
18	60	88	139	727	413	511	438	216	156	53	49	44
19	99	82	141	563	581	465	444	208	143	52	70	45
20	93	74	141	455	707	465	457	192	134	52	53	55
21	80	69	137	380	627	532	474	179	125	51	47	61
22	73	68	144	318	532	540	460	179	120	46	43	57
23	72	82	130	274	462	542	429	171	136	42	39	54
24	73	84	125	248	400	492	397	161	117	39	38	52
25	71	84	136	230	366	448	362	160	109	43	37	49
26	81	79	137	160	389	414	339	371	114	44	36	48
27	74	75	128	120	457	399	336	348	128	43	34	49
28	72	69	122	110	522	354	344	320	114	42	36	48
29	71	60	116	95	532	330	381	305	99	38	38	47
30	68	58	112	90	---	325	346	299	91	38	38	45
31	65	---	109	90	---	308	---	263	---	37	42	---
TOTAL	1808	2036	5187	13427	9309	13751	11062	8065	4832	1814	1164	1431
MEAN	58.3	67.9	167	433	321	444	369	260	161	58.5	37.5	47.7
MAX	99	88	455	1750	707	724	484	371	241	84	70	72
MIN	37	58	70	90	110	308	261	160	91	37	29	34
AC-FT	3590	4040	10290	26630	18460	27280	21940	16000	9580	3600	2310	2840

CAL YR 1979 TOTAL 70692 MEAN 194 MAX 1830 MIN 24 AC-FT 140200
WTR YR 1980 TOTAL 73886 MEAN 202 MAX 1750 MIN 29 AC-FT 146600

14017600 TOUCHET RIVER AT TOUCHET, WA

LOCATION.--Lat 46°02'29", long 118°40'59", in NE¼SE¼ sec.33, T.7 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, at U.S. Highway 410 bridge, 0.5 mi (0.8 km) upstream from mouth, and 0.6 mi (1.0 km) west of Touchet.

DRAINAGE AREA.--About 750 mi² (1,940 km²).

PERIOD OF RECORD.--Water years 1972, 1974-75, 1977 to June 1980 (discontinued).

REMARKS.--Water discharge from rating; discharge value is good. Prior to October 1973 published as 14017500.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT , 1979											
23...	1430	42	175	7.1	12.9	10	24	8.6	.21	.020	.23
NOV											
27...	1250	980	136	7.1	3.0	30	35	11.6	.34	.020	.36
DEC											
18...	1340	54	110	7.3	3.4	13	20	11.9	.81	.020	.83
JAN , 1980											
22...	1310	350	135	7.0	2.1	50	75	12.6	2.4	.040	2.5
FEB											
27...	1420	449	130	7.3	9.0	--	270	10.8	1.7	.050	1.8
MAR											
25...	1350	472	115	7.2	8.6	11	75	9.6	1.7	.010	1.8
APR											
22...	1410	408	90	6.8	13.2	16	30	9.1	.54	.010	.55
MAY											
29...	1200	249	120	6.7	17.3	--	60	8.0	.52	.010	.53
JUN											
24...	1330	112	110	6.7	19.8	--	30	8.3	--	--	.43

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1979										
23...	.020	.03	.43	.45	.68	3.0	.090	.28	.070	.21
NOV										
27...	.020	.03	.37	.39	.75	3.3	.080	.25	.070	.21
DEC										
18...	.000	.00	.46	.46	1.2	5.7	.120	.37	.100	.30
JAN , 1980										
22...	.070	.09	1.0	1.10	3.6	16	.100	.31	.110	.33
FEB										
27...	.130	.16	1.9	2.00	3.8	16	.570	1.7	.120	.36
MAR										
25...	.200	.26	1.4	1.60	3.4	15	.200	.61	.080	.24
APR										
22...	.020	.03	.76	.78	1.3	5.8	.160	.49	.070	.21
MAY										
29...	.030	.04	.65	.68	1.2	5.3	.120	.37	.040	.12
JUN										
24...	.000	--	--	--	--	--	--	--	.100	.30

14018500 WALLA WALLA RIVER NEAR TOUCHET, WA

LOCATION.--Lat 46°01'40", long 118°43'43", in NW¼SE¼ sec.6, T.6 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, on left bank 0.8 mi (1.3 km) upstream from Gardena Creek, 2.8 mi (4.5 km) southwest of Touchet, 3.4 mi (5.5 km) downstream from Touchet River, and at mile 18.2 (29.3 km).

DRAINAGE AREA.--1,657 mi^2 (4,292 km^2).

PERIOD OF RECORD.__October 1951 to current year.

REVISED RECORDS.--WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 405 ft (123 m), from topographic map. Prior to Nov. 27, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good. Stage discharge relation affected by ice Jan. 8-12, Jan. 27-Feb. 2. No gage-height record July 8-Aug. 28.

AVERAGE DISCHARGE.--29 years, 589 ft^3/s (16.68 m^3/s) 426,700 acre-ft/yr (526 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft^3/s (946 m^3/s) Dec. 22, 1964, gage height, 18.90 ft (5.761 m), from rating curve extended above 15,000 ft^3/s (425 m^3/s) on basis of slope-area measurement of peak flow; no flow July 30 to Aug. 8, Aug. 12, 13, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft^3/s (85.0 m^3/s) and maximum (*):

		Discharge		Gage height	
Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)
Jan. 15	0800	*4,280	121	*9.24	2.816

Minimum daily discharge, 3.8 ft^3/s (0.11 m^3/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	50	274	407	430	1450	758	650	552	92	12	12
2	4.0	54	301	437	530	1310	706	575	603	65	12	12
3	11	53	478	496	985	1200	663	611	522	81	14	13
4	7.8	55	714	545	985	1220	630	548	454	81	12	17
5	7.1	55	1680	1060	840	1250	614	522	387	81	14	16
6	6.4	68	1020	1910	810	1200	688	591	347	81	10	11
7	4.5	65	744	1230	920	1120	714	622	312	78	12	8.9
8	4.5	66	607	950	825	1040	663	507	279	66	14	10
9	7.5	70	530	700	762	1020	663	464	234	58	11	8.9
10	9.7	69	507	620	731	985	920	522	184	58	10	10
11	8.9	71	556	620	701	1240	945	486	161	70	10	9.3
12	8.5	74	489	950	663	1240	905	433	145	57	9.3	8.9
13	8.2	80	437	2730	646	1200	890	384	274	54	10	21
14	7.1	72	397	3420	638	1250	985	350	338	46	8.2	100
15	6.8	72	378	3830	591	1720	1170	344	323	36	8.2	82
16	7.5	78	404	2540	567	1520	1160	368	309	36	6.4	51
17	18	102	381	2230	583	1360	1050	329	271	31	6.4	40
18	20	139	413	1910	1160	1250	1080	298	243	26	8.2	32
19	36	169	447	1480	2090	1140	1090	266	217	24	15	31
20	73	153	444	1190	2380	1070	1100	220	191	20	33	41
21	78	141	437	1030	2120	1320	1140	195	176	25	23	53
22	65	136	437	895	1740	1390	1170	169	163	24	10	59
23	64	161	450	790	1470	1450	1050	159	141	22	10	47
24	50	217	444	731	1260	1330	930	143	161	15	8.9	43
25	55	269	454	693	1140	1190	825	136	141	12	8.9	42
26	61	258	457	622	1120	1080	744	444	138	12	8.9	41
27	65	239	437	480	1290	1030	723	1030	153	15	8.9	37
28	70	217	423	400	1430	925	740	950	173	16	8.9	37
29	69	217	410	380	1580	845	890	840	145	16	8.9	35
30	61	251	400	370	---	830	780	723	132	10	9.3	31
31	50	---	397	370	---	795	---	638	---	10	10	---
TOTAL	948.3	3721	15947	36016	30987	36970	26386	14517	7869	1338	351.4	960.0
MEAN	30.6	124	514	1162	1069	1193	880	468	262	43.2	11.3	32.0
MAX	78	269	1680	3830	2380	1720	1170	1030	603	92	33	100
MIN	3.8	50	274	370	430	795	614	136	132	10	6.4	8.9
AC-FT	1880	7380	31630	71440	61460	73330	52340	28790	15610	2650	697	1900

CAL YR 1979 TOTAL 195162.13 MEAN 535 MAX 7900 MIN .82 AC-FT 387100
WTR YR 1980 TOTAL 176010.70 MEAN 481 MAX 3830 MIN 3.8 AC-FT 349100

NOTE: No gage-height record July 8 to Aug. 28.

14018600 WALLA WALLA RIVER BELOW WARM SPRINGS CREEK NEAR TOUCHET, WA

LOCATION.--Lat 46°02'16", long 118°45'55", in SE¼SE¼ sec.35, T.7 N., R.32 E., Walla Walla County, Hydrologic Unit 17070102, at county road bridge, 0.9 mi (1.4 km) downstream from Warm Springs Canyon, 2.5 mi (4.0 km) downstream from gaging station, 3.7 mi (6.0 km) west of Touchet, and at mile 15.7 (25.3 km).

DRAINAGE AREA.--About 1,690 mi^2 (4,380 km^2).

PERIOD OF RECORD.--Water years 1959 to 1971, 1974 to June 1980 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1959 to June 1970.
SEDIMENT RECORDS: October 1962 to June 1970.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is poor. Records collected prior to October 1973 published as 14018500 "near Touchet".

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO JUNE 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
OCT , 1979											
23...	1450	64	310	8.0	12.5	10	19	10.0	.86	.020	.88
NOV											
27...	1310	24	275	7.8	3.2	39	35	12.7	1.4	.020	1.5
DEC											
18...	1400	410	190	7.3	4.3	17	16	12.0	1.2	.020	1.3
JAN , 1980											
22...	1330	901	155	7.4	2.4	30	80	11.0	2.1	.040	2.2
FEB											
27...	1445	1290	150	7.2	8.4	--	100	9.7	1.6	.060	1.7
MAR											
25...	1415	1210	110	7.2	7.2	6	30	9.9	1.6	.020	1.7
APR											
22...	1430	1190	110	7.1	12.0	16	45	9.2	.69	.010	.70
MAY											
29...	1220	852	130	6.9	12.3	--	65	8.3	.60	.010	.61
JUN											
24...	1400	167	145	6.9	23.4	--	30	7.7	.58	.040	.62

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
OCT , 1979										
23...	.010	.01	.71	.72	1.6	7.0	.130	.40	.080	.24
NOV										
27...	.020	.02	.59	.61	2.1	9.3	.190	.58	.170	.52
DEC										
18...	.100	.12	.57	.67	1.9	8.7	.180	.55	.160	.49
JAN , 1980										
22...	.110	.13	1.2	1.40	3.6	15	.230	.71	.160	.49
FEB										
27...	.100	.12	1.0	1.10	2.8	12	.440	1.4	.080	.24
MAR										
25...	.130	--	1.0	1.20	2.9	12	.250	--	.110	.33
APR										
22...	.020	.02	.61	.63	1.3	5.8	.140	.43	.100	.30
MAY										
29...	.010	.01	.44	.45	1.0	4.6	.200	.61	.060	.18
JUN										
24...	.060	.07	.54	.60	1.2	5.4	.110	.34	.130	.39

14019200 COLUMBIA RIVER AT McNARY DAM, NEAR UMATILLA, OR

LOCATION.--Lat 45°56'05", long 119°17'45", in NE¼ sec.10, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070101, in powerhouse forebay between generator units 2 and 3 at McNary Dam, 2.5 mi (4.0 km) northeast of Umatilla, 3.0 mi (4.8 km) upstream from Umatilla River, and at mile 292.0 (469.8 km).

DRAINAGE AREA.--214,000 mi^2 (554,300 km^2), approximately.

PERIOD OF RECORD.--October 1950 to current year. Gage-height records collected at site at Umatilla since 1876 are contained in reports of National Weather Service. Prior to October 1966, published as "below McNary Dam."

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1966, at site 1.2 mi (1.9 km) downstream (tailwater) at 240.04 ft (73.164 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records computed from power output and flow over spillway at McNary Dam. Considerable regulation by many reservoirs upstream. Diurnal fluctuation caused by powerplant and gates at McNary Dam since beginning of operation in April 1953. Many diversions for irrigation above station.

COOPERATION.--Daily discharge and midnight forebay elevation records furnished by Corps of Engineers. Two discharge measurements made and records reviewed by Geological Survey.

AVERAGE DISHARGE.--30 years, 182,500 ft^3/s (5,168 m^3/s), 132,200,000 acre-ft/yr (163 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 818,000 ft^3/s (23,200 m^3/s) June 2, 1956, elevation, 277.01 ft (84.433 m), at site 1.2 mi (1.9 km) downstream; maximum daily discharge, 798,000 ft^3/s (22,600 m^3/s) June 2, 1956; minimum daily discharge, 39,500 ft^3/s (1,120 m^3/s) July 10, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1894, reached an elevation of 284.2 ft (86.62 m), and that of May 31, 1948, reached an elevation of about 280 ft (85.3 m), both at site 1.2 mi (1.9 km) downstream; information furnished by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 330,000 ft^3/s (9,350 m^3/s) June 17; maximum midnight forebay elevation, 339.9 ft (103.60 m) May 14, June 6; minimum daily discharge, 47,500 ft^3/s (1,350 m^3/s) Apr. 13; minimum midnight forebay elevation, 336.5 ft (102.57 m) Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84100	133000	136000	102000	160000	107000	146000	255000	286000	203000	138000	79600
2	113000	131000	94800	124000	117000	85900	127000	243000	298000	193000	115000	112000
3	106000	112000	119000	146000	92700	122000	114000	241000	303000	165000	99400	124000
4	117000	78800	121000	170000	119000	150000	115000	231000	285000	176000	125000	114000
5	102000	116000	134000	122000	146000	153000	125000	237000	267000	192000	132000	122000
6	99400	114000	149000	131000	160000	152000	73600	261000	286000	188000	115000	94300
7	63900	122000	132000	161000	142000	160000	144000	296000	287000	193000	132000	68200
8	87700	132000	129000	173000	133000	123000	126000	261000	290000	177000	118000	108000
9	104000	133000	82900	176000	129000	114000	136000	267000	289000	203000	107000	104000
10	101000	116000	148000	166000	103000	131000	150000	247000	287000	191000	88500	100000
11	124000	106000	167000	172000	135000	156000	132000	232000	292000	187000	130000	98400
12	93100	142000	164000	122000	157000	157000	102000	228000	305000	131000	123000	102000
13	111000	142000	158000	92400	160000	150000	47500	224000	308000	123000	115000	88100
14	76400	162000	148000	137000	174000	147000	126000	228000	300000	154000	144000	71900
15	111000	136000	112000	149000	171000	126000	132000	231000	277000	188000	132000	91800
16	97300	143000	109000	133000	140000	122000	132000	241000	285000	156000	114000	110000
17	100000	135000	157000	144000	120000	152000	141000	241000	330000	148000	98800	116000
18	121000	106000	133000	148000	125000	156000	148000	222000	317000	144000	113000	124000
19	131000	153000	139000	147000	138000	131000	122000	180000	328000	146000	127000	110000
20	121000	134000	121000	109000	150000	152000	118000	227000	293000	139000	119000	91700
21	85500	156000	145000	137000	153000	112000	160000	225000	292000	167000	105000	77900
22	116000	141000	122000	140000	152000	86600	166000	250000	270000	152000	110000	91000
23	116000	121000	120000	156000	106000	80500	170000	305000	302000	151000	115000	115000
24	111000	128000	132000	132000	114000	113000	166000	271000	298000	137000	57700	105000
25	108000	96900	63900	144000	122000	149000	162000	227000	295000	137000	112000	102000
26	110000	127000	135000	163000	116000	137000	190000	232000	258000	127000	140000	117000
27	75400	145000	135000	130000	128000	136000	167000	247000	241000	105000	130000	113000
28	84000	163000	140000	173000	111000	130000	199000	264000	227000	134000	120000	74100
29	122000	155000	132000	188000	146000	106000	240000	285000	212000	132000	118000	105000
30	121000	156000	95300	184000	---	97700	236000	275000	215000	141000	117000	133000
31	116000	---	116000	180000	---	116000	---	280000	---	136000	103000	---
TOTAL	3228800	3935700	3989900	4551400	3919700	4010700	4313100	7654000	8523000	4916000	3613400	3063000
MEAN	104200	131200	128700	146800	135200	129400	143800	246900	284100	158600	116600	102100
MAX	131000	163000	167000	188000	174000	160000	240000	305000	330000	203000	144000	133000
MIN	63900	78800	63900	92400	92700	80500	47500	180000	212000	105000	57700	68200
AC-FT	6404000	7806000	7914000	9028000	7775000	7955000	8555000	15180000	16910000	9751000	7167000	6075000

CAL YR 1979 TOTAL 52559500 MEAN 144000 MAX 293000 MIN 58100 AC-FT 104300000
WTR YR 1980 TOTAL 55718700 MEAN 152200 MAX 330000 MIN 47500 AC-FT 110500000

ALDER CREEK BASIN

14034350 ALDER CREEK AT ALDERDALE, WA

LOCATION.--Lat 45°50'30", long 119°55'50" in NW¼SW¼ sec.10, T.4 N., R.23 E., Klickitat County, Hydrologic Unit 17070101, on left bank 1 mi (1.6 km) upstream from mouth, and 0.5 mi (0.8 km) north of Alderdale.

DRAINAGE AREA.--197 mi² (510 km²).

PERIOD OF RECORD.--September 1962 to September 1968, March 1980 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 275 ft (84 m) from topographic map. Prior to Dec. 30, 1964, water-stage recorder at site 0.4 mi (0.6 km) downstream at different datum. December 30, 1964, to May 5, 1965, staff gage; and May 6, 1965, to September 30, 1968, recorder at present site and datum.

REMARKS.--Records excellent. No regulation or diversion above station. Undetermined amount of ground-water withdrawals for irrigation upstream.

AVERAGE DISCHARGE.--6 years (water years 1963-68) 8.51 ft³/s (0.241 m³/s), 6,160 acre-ft/yr (7.60 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,600 ft³/s (498 m³/s) Dec. 22, 1964, gage height, 13.3 ft (4.05 m); from rating curve extended above 600 ft³/s (17.0 m³/s) on basis of slope-area measurement of peak discharge; minimum daily discharge, 0.30 ft³/s (0.008 m³/s) July 20, 1963, June 26, July 2-11, 28-30, 1968.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 49 ft³/s (1.39 m³/s) Mar. 15, gage height, 1.78 ft (0.543 m); minimum, 0.30 ft³/s (0.008 m³/s) July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	8.6	4.2	2.1	1.0	.43	.80
2						---	8.2	4.0	1.9	1.0	.61	.70
3						---	8.2	3.7	2.1	1.0	.70	.70
4						---	7.7	3.7	1.9	1.0	.52	.70
5						---	7.3	3.4	1.7	1.0	.52	.70
6						---	7.3	4.2	1.7	1.0	.61	.70
7						---	7.3	3.7	1.7	1.0	.52	.70
8						---	7.3	3.4	1.4	.90	.52	.61
9						---	6.9	3.4	1.3	.80	.52	.61
10						25	6.5	4.0	1.4	.80	.52	.70
11						23	6.5	4.0	1.4	.80	.52	.61
12						21	6.2	3.4	1.3	.80	.52	.80
13						20	5.8	3.2	3.2	.80	.52	.90
14						20	5.8	3.4	3.2	.70	.61	.90
15						30	5.8	3.4	2.3	.70	.61	.80
16						24	5.8	3.2	1.9	.70	.61	.70
17						19	5.5	2.9	1.7	.70	.70	.61
18						21	5.1	2.9	1.7	.70	.80	.70
19						18	4.8	2.9	1.6	.70	.70	.80
20						17	5.8	2.5	1.4	.70	.70	.80
21						17	6.5	2.3	1.3	.61	.70	.80
22						22	6.5	2.3	1.4	.52	.61	.80
23						19	6.2	2.3	1.4	.52	.52	.80
24						15	5.5	2.3	1.3	.52	.61	.80
25						13	5.5	2.7	1.6	.52	.61	.80
26						13	5.1	4.5	2.9	.52	.61	.80
27						12	4.5	3.7	2.5	.52	.61	.70
28						10	4.2	2.9	1.7	.52	.61	.80
29						10	4.2	2.7	1.3	.52	.61	.90
30						9.5	4.2	2.5	1.1	.52	.61	.80
31						9.0	---	2.1	---	.52	.80	---
TOTAL						---	184.8	99.8	53.4	22.61	18.66	22.54
MEAN						---	6.16	3.22	1.78	.73	.60	.75
MAX						---	8.6	4.5	3.2	1.0	.80	.90
MIN						---	4.2	2.1	1.1	.52	.43	.61
AC-FT						---	367	198	106	45	37	45

14105700 COLUMBIA RIVER AT THE DALLES, OR

LOCATION.--Lat 45°36'27", long 121°10'20", in SW¼SW¼ sec.34, T.2 N., R.13 E., Wasco County, Hydrologic Unit 17070105, Corps of Engineers land, on left bank 0.3 mi (0.5 km) downstream from Mill Creek, 2.6 mi (4.2 km) downstream from The Dalles Dam, and at mile 188 9 (303.9 km).

DRAINAGE AREA.--237,000 mi^2 (614,000 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1857 to September 1877 (annual maximum only, at Lower Cascades Landing, published in WSP 1318), June 1878 to current year. Published as "near The Dalles" 1936-56.

REVISED RECORDS.--WSP 534: 1920(m). WSP 1094: 1894. WSP 1248: 1866, 1888, 1899, 1909. WSP 1518: 1876(M).

GAGE.--Acoustic velocity meter (AVM) with water-stage and velocity-index recorder. Datum of gage is National Geodetic Vertical Datum of 1929. See WSP 1738 for history of changes prior to Mar. 16, 1957. Mar. 16, 1957, to Sept. 30, 1968, water-stage recorder at site 0.4 mi (0.6 km) upstream at same datum.

REMARKS.--Water-discharge records excellent. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--102 years, 193,100 ft^3/s (5,469 m^3/s), 139,900,000 acre-ft/yr (172 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (1858-1980), 1,240,000 ft^3/s (35,100 m^3/s) June 6, 1894, gage height, 106.5 ft (32.46 m); minimum (1878-1980), 12,100 ft^3/s (343 m^3/s) Apr. 16, 1968 (recorded by AVM due to closure of John Day Dam).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 345,000 ft^3/s (9,770 mi^3/s) June 18; maximum gage height, 81.53 ft (24.850 m) May 23; minimum daily discharge, 70,500 ft^3/s (2,000 mi^3/s) Sept. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95400	113000	152000	105000	151000	131000	133000	268000	274000	212000	139000	115000
2	108000	125000	120000	130000	145000	110000	136000	278000	303000	155000	104000	117000
3	106000	134000	120000	128000	122000	132000	124000	231000	293000	186000	112000	108000
4	114000	124000	119000	128000	129000	161000	132000	223000	280000	130000	131000	116000
5	102000	146000	152000	145000	128000	200000	120000	230000	258000	197000	141000	110000
6	102000	131000	161000	124000	134000	170000	107000	262000	285000	200000	137000	94800
7	81300	130000	133000	105000	122000	173000	133000	302000	301000	193000	135000	70500
8	113000	135000	133000	171000	151000	130000	144000	292000	296000	197000	125000	123000
9	90200	127000	125000	219000	143000	119000	145000	208000	208000	203000	95100	112000
10	122000	138000	137000	194000	114000	135000	163000	276000	296000	192000	88300	104000
11	120000	118000	149000	193000	135000	166000	152000	278000	293000	205000	138000	105000
12	90600	140000	167000	142000	163000	194000	101000	250000	301000	139000	134000	99400
13	86500	127000	162000	126000	174000	203000	105000	251000	292000	116000	131000	84500
14	80600	128000	177000	152000	200000	186000	116000	240000	290000	156000	106000	73100
15	120000	119000	129000	164000	210000	122000	112000	219000	274000	181000	109000	98200
16	101000	127000	108000	180000	139000	118000	152000	246000	285000	171000	109000	115000
17	97400	141000	149000	132000	110000	167000	143000	241000	318000	146000	93900	124000
18	128000	130000	131000	130000	145000	192000	160000	246000	345000	146000	122000	117000
19	118000	127000	150000	162000	136000	134000	133000	214000	329000	133000	141000	118000
20	110000	130000	143000	122000	133000	131000	132000	238000	293000	149000	125000	100000
21	95300	151000	136000	151000	168000	144000	177000	243000	274000	173000	113000	80600
22	134000	155000	126000	163000	182000	137000	195000	255000	283000	173000	121000	102000
23	123000	135000	124000	171000	131000	118000	214000	291000	286000	150000	92100	122000
24	114000	132000	136000	150000	122060	132000	232000	274000	290000	140000	71200	101000
25	116000	121000	124000	133000	125000	115000	200000	241000	297000	142000	97700	109000
26	117000	140000	135000	188000	121000	125000	172000	240000	303000	130000	139000	116000
27	114000	146000	127000	139000	150000	122000	146000	239000	259000	114000	120000	116000
28	102000	155000	137000	200000	138000	132000	189000	257000	196000	116000	124000	99600
29	128000	158000	124000	231000	146000	125000	247000	291000	188000	121000	123000	115000
30	116000	154000	128000	188000	---	115000	262000	312000	224000	137000	118000	121000
31	106000	---	136000	201000	---	135000	---	293000	---	138000	113000	---
TOTAL	3359300	4037000	4250000	4952000	4179000	4434000	4677000	8017000	8502000	4965600	3648300	3186700
MEAN	108400	134600	137100	159700	144100	143000	155900	258600	283400	160200	117700	106200
MAX	134000	158000	177000	231000	210000	203000	262000	312000	345000	212000	141000	124000
MIN	80600	113000	108000	105000	110000	110000	101000	214000	188000	114000	71200	70500
AC-FT	6663000	8007000	8430000	9822000	8289000	8795000	9277000	15900000	16860000	9848000	7236000	6321000

CAL YR 1979 TOTAL 54616600 MEAN 149600 MAX 311000 MIN 65500 AC-FT 108300000
WTR YR 1980 TOTAL 58207300 MEAN 159000 MAX 345000 MIN 70500 AC-FT 115500000

14105700 COLUMBIA RIVER NEAR THE DALLES, OR--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at The Dalles Dam, 3.2 mi (5.1 km) upstream from gaging station.

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1950 to current year.
WATER TEMPERATURES: December 1950 to September 1969, October 1973 to September 1976.

REMARKS.--No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

EXTREMES OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 324 micromhos Dec. 7, 1955; minimum daily, 95 micromhos June 8, 1972.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily recorded, 218 micromhos Mar. 14; minimum daily recorded, 125 micromhos June 8.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	166	184			---	197	200	140	132	143	152
2	---	166	---			---	198	200	141	132	142	153
3	---	164	---			---	199	198	138	131	---	155
4	163	161	---			---	201	198	135	130	143	155
5	163	166	---			---	201	198	132	130	143	156
6	163	173	---			---	203	190	128	132	143	155
7	165	178	---			---	198	175	128	132	144	156
8	164	181	---			---	200	---	125	132	145	158
9	167	184	---			---	197	160	---	133	145	158
10	167	188	---			---	195	153	130	132	145	162
11	168	196	---			---	195	152	132	133	145	157
12	167	196	---			---	193	152	134	135	---	159
13	167	197	---			212	191	152	135	135	---	158
14	165	190	---			218	193	149	139	136	146	158
15	164	189	---			214	191	148	137	138	146	157
16	163	188	---			211	192	147	137	140	148	157
17	161	186	---			210	192	147	137	139	---	157
18	161	181	---			215	190	147	138	140	150	161
19	164	---	---			216	189	145	141	141	149	162
20	163	182	---			215	186	144	146	---	159	162
21	163	---	---			216	184	144	148	---	151	162
22	---	---	---			212	182	144	148	145	152	163
23	167	---	---			211	186	145	146	---	153	164
24	167	---	---			207	186	137	143	143	152	165
25	165	---	---			203	187	136	141	142	153	165
26	164	---	---			202	186	137	137	143	153	163
27	163	---	---			198	188	138	135	143	153	165
28	162	---	---			193	190	137	134	144	154	165
29	161	---	---			189	196	137	134	143	152	165
30	163	---	---			192	199	137	133	143	153	168
31	165	---	---			193	---	138	---	143	153	---
MEAN	164	181	184			207	193	156	137	137	149	160

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	166	184			---	197	200	140	132	143	152
2	---	166	---			---	198	200	141	132	142	153
3	---	164	---			---	199	198	138	131	---	155
4	163	161	---			---	201	198	135	130	143	155
5	163	166	---			---	201	198	132	130	143	156
6	163	173	---			---	203	190	128	132	143	155
7	165	178	---			---	198	175	128	132	144	156
8	164	181	---			---	200	---	125	132	145	158
9	167	184	---			---	197	160	---	133	145	158
10	167	188	---			---	195	153	130	132	145	162
11	168	196	---			---	195	152	132	133	145	157
12	167	196	---			---	193	152	134	135	---	159
13	167	197	---			212	191	152	135	135	---	158
14	165	190	---			218	193	149	139	136	146	158
15	164	189	---			214	191	148	137	138	146	157
16	163	188	---			211	192	147	137	140	148	157
17	161	186	---			210	192	147	137	139	---	157
18	161	181	---			215	190	147	138	140	150	161
19	164	---	---			216	189	145	141	141	149	162
20	163	182	---			215	186	144	146	---	159	162
21	163	---	---			216	184	144	148	---	151	162
22	---	---	---			212	182	144	148	145	152	163
23	167	---	---			211	186	145	146	---	153	164
24	167	---	---			207	186	137	143	143	152	165
25	165	---	---			203	187	136	141	142	153	165
26	164	---	---			202	186	137	137	143	153	163
27	163	---	---			198	188	138	135	143	153	165
28	162	---	---			193	190	137	134	144	154	165
29	161	---	---			189	196	137	134	143	152	165
30	163	---	---			192	199	137	133	143	153	168
31	165	---	---			193	---	138	---	143	153	---
MEAN	164	181	184			207	193	156	137	137	149	160

14112500 LITTLE KLICKITAT RIVER NEAR WAHKIACUS, WA

LOCATION.--Lat 45°50'36", long 121°03'27", in SW¼SE¼ sec.9, T.4 N., R.14 E., Klickitat County, Hydrologic Unit 17070106, on right bank 450 ft (137 m) upstream from bridge on State Highway 142, 1.1 mi (1.8 km) downstream from Bowman Creek, 2.3 mi (3.7 km) northeast of Wahkiacus and at mile 0.4 (0.6 km).

DRAINAGE AREA.--280 mi² (725 km²).

PERIOD OF RECORD.--November 1944 to current year. Monthly discharge only for some periods, published in WSP's 1318 and 1935. Water quality records October 1976 to September 1977.

REVISED RECORDS.--WSP 1248: Drainage area. WSP 1388: 1945(M), 1946, 1947(M), 1948.

GAGE.--Water-stage recorder. Datum of gage is 570.34 ft (173.840 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to Dec. 29, 1950, nonrecording gage and crest-stage indicator and Dec. 29, 1950 to Dec. 23, 1964, water-stage recorder at present site at datum 5.86 ft (1.786 m) higher. Dec. 24, 1964 to May 30, 1973, water-stage recorder at site 500 ft (152 m) downstream at present datum.

REMARKS.--Records good. Diversions above station for irrigation of 600 acres (2.4 km²). No regulation.

AVERAGE DISCHARGE.--35 years (water years 1946-80), 174 ft³/s (4.928 m³/s), 126,100 acre-ft/yr (155 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s (496 m³/s) Jan. 15, 1974, gage height, 17.58 ft (5.358 m), from rating curve extended above 2,600 ft³/s (73.6 m³/s) on basis of slope-area measurement at gage height 17.51 ft (5.337 m); minimum, 6.4 ft³/s (0.18 m³/s) July 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,200 ft³/s (34.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	(m³/s)	Gage height (ft)	(m)
Jan. 14	0030	2,740	77.6	11.12	3.389
Feb. 26	2145	*3,350	94.9	11.44	3.487

Minimum discharge, 11 ft³/s (0.31 m³/s) Aug. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	30	28	85	140	1210	217	214	69	38	15	14
2	20	29	70	91	150	1010	211	208	67	34	18	14
3	20	33	205	91	185	896	201	201	67	33	18	14
4	21	46	241	91	258	820	195	189	70	35	18	14
5	21	44	198	91	240	756	230	183	64	35	14	13
6	20	42	132	66	265	772	240	189	61	33	15	13
7	20	39	110	64	356	665	230	178	61	30	15	13
8	20	36	97	62	330	565	220	166	61	29	14	13
9	21	33	95	60	304	497	300	161	58	26	14	13
10	21	32	93	55	292	469	295	161	56	26	14	14
11	21	32	93	60	273	469	273	150	54	27	14	14
12	20	31	81	480	255	463	265	143	56	28	12	15
13	20	30	62	1600	240	452	269	136	85	29	12	16
14	20	30	59	2120	217	457	277	129	96	28	12	18
15	21	29	62	1330	204	425	277	127	77	28	12	21
16	20	33	70	836	195	370	273	116	69	26	11	24
17	19	48	70	665	204	366	269	106	67	26	11	26
18	21	42	80	480	420	347	261	104	63	26	12	29
19	30	36	88	361	543	325	269	98	60	24	13	25
20	34	33	88	292	950	317	288	98	54	24	13	27
21	39	32	91	269	667	300	343	89	53	26	13	26
22	32	30	91	234	520	296	304	90	50	24	13	27
23	31	31	85	217	570	292	284	89	49	23	12	27
24	31	49	84	211	716	281	273	82	49	22	13	26
25	35	52	82	208	860	269	261	80	60	23	13	26
26	36	43	76	175	2070	261	251	85	50	22	13	26
27	37	36	71	135	2750	251	240	89	53	20	13	25
28	38	30	67	130	2140	240	237	82	48	19	13	25
29	33	30	66	125	1470	237	237	77	42	17	13	25
30	30	31	66	120	---	230	224	75	41	17	12	25
31	31	---	65	125	---	224	---	74	---	15	14	---
TOTAL	804	1072	2866	10929	17808	14548	7716	3970	1818	813	419	602
MEAN	25.9	35.7	92.5	353	614	469	257	128	60.6	26.2	13.5	20.1
MAX	39	52	241	2120	2750	1210	343	214	96	38	18	29
MIN	19	29	28	55	140	224	195	74	41	15	11	13
AC-FT	1595	2130	5680	21680	35320	28840	15300	7870	3610	1610	831	1190

CAL YR 1979 TOTAL 24971.1 MEAN 68.4 MAX 1980 MIN 7.2 AC-FT 49530
WTR YR 1980 TOTAL 63355.0 MEAN 173 MAX 2750 MIN 11 AC-FT 125700

14113000 KLICKITAT RIVER NEAR PITT, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 45°45'24", long 121°12'32", in SW¼ sec.8, T.3 N., R.13 E., Klickitat County, Hydrologic Unit 17070106, on left bank 2.8 mi (4.5 km) south of Pitt, 4.8 mi (7.7 km) southwest of Klickitat, 5.3 mi (8.5 km) upstream from Silvias Creek, and at mile 7.0 (11.3 km).

DRAINAGE AREA.--1,297 mi^2 (3,359 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1909 to January 1912, October 1928 to current year. Published as "at Klickitat" 1909-12 and as "at Pitt" 1928-35.

REVISED RECORDS.--WSP 1348: 1910(M), 1929-33(M), 1934, 1935-38(M), 1940(M), 1942-43(M), 1946(M), 1948(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.9 ft (88.06 m) National Geodetic Vertical Datum of 1929 (river-profile survey). July 3, 1909, to Jan. 31, 1912, nonrecording gage at site 7 mi (11 km) upstream at different datum. Oct. 1, 1928, to Sept. 30, 1935, nonrecording gage at site 3.5 mi (5.6 km) upstream at different datum.

REMARKS.--Water-discharge records excellent. Several small diversions above station for irrigation of about 7,500 acres (30 km^2) mostly in vicinity of Glenwood. The largest of these is Hellroaring Irrigation Canal with a maximum flow of 74.5 ft^3/s (2.11 m^3/s) Aug. 13, 1974, which at times diverts the entire flow of Hellroaring Creek (tributary to Big Muddy Crek). No regulation.

AVERAGE DISCHARGE.--54 years (water years 1910-11, 1929-80), 1,606 ft^3/s (45.48 m^3/s), 1,164,000 acre-ft/yr (1,435 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft^3/s (1,340 m^3/s) Jan. 15, 1974, gage height, 17.12 ft (5.218 m) from high-water mark in well, from rating curve extended above 13,000 ft^3/s (368 m^3/s) on basis of slope-area measurement at gage height 14.34 ft (4.371 m); minimum, 412 ft^3/s (11.7 m^3/s) Jan. 16, 1979, gage height, 3.81 ft (1.161 m).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,000 ft^3/s (113 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 13	2230	6,540	185	8.21	2.502
Feb. 27	1630	*8,860	251	*9.19	2.801
Apr. 29	0500	4,260	121	7.09	2.161

Minimum discharge, 487 ft^3/s (13.8 m^3/s) Oct. 10, 11, gage height, 3.93 ft (1.198 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	520	602	575	957	1170	5510	1870	3390	1680	1120	796	636
2	513	596	735	1020	1240	4890	1810	3530	1640	1120	787	656
3	506	613	1030	993	1380	4530	1790	3520	1560	1120	781	656
4	504	670	1260	966	1450	4320	1790	3420	1510	1120	760	644
5	508	691	1410	973	1420	4210	2170	3560	1450	1120	761	642
6	511	692	1100	830	1510	3940	2430	3620	1420	1120	740	649
7	520	661	1010	742	1860	3670	2300	3360	1380	1100	714	643
8	521	630	950	843	1830	3340	2200	3170	1410	1090	726	633
9	509	612	903	790	1680	3150	2960	2970	1420	1090	705	615
10	500	597	965	776	1550	3010	3150	2880	1430	1080	716	624
11	520	591	910	818	1440	2990	2970	2840	1430	1040	725	627
12	524	578	906	1550	1360	2850	2910	2730	1390	1010	718	624
13	524	570	868	4290	1320	2930	2970	2770	1540	1000	753	608
14	513	568	856	5780	1240	3040	3080	2710	1700	980	728	637
15	507	560	886	4540	1160	2820	3130	2550	1540	980	705	652
16	507	588	983	3490	1140	2570	3040	2360	1490	970	698	620
17	502	646	955	2930	1170	2480	3060	2260	1500	952	695	619
18	516	622	1290	2410	1560	2410	2930	2250	1470	944	702	635
19	574	594	1330	1990	1960	2310	3020	2200	1430	925	683	625
20	590	572	1340	1780	3060	2270	3350	2130	1430	935	683	637
21	582	559	1370	1740	2760	2210	3820	2300	1410	970	684	650
22	559	572	1270	1600	2410	2220	3560	2350	1350	995	676	636
23	597	581	1160	1480	2250	2240	3490	2150	1280	1000	666	628
24	719	631	1100	1420	2510	2180	3620	1980	1230	930	678	631
25	880	616	1040	1370	2830	2130	3470	1860	1370	892	675	628
26	759	595	991	1240	5650	2100	3340	1800	1350	879	663	626
27	726	554	955	976	8190	2060	3470	1760	1230	874	663	631
28	697	511	911	869	7930	1980	3880	1660	1200	873	647	630
29	645	541	898	794	6600	1990	4040	1600	1190	858	634	636
30	623	578	882	907	---	1950	3590	1580	1150	816	633	663
31	616	---	877	1100	---	1920	---	1630	---	790	634	---
TOTAL	17792	17991	31716	51972	71630	90220	89210	78890	42580	30693	21829	19041
MEAN	574	600	1023	1677	2470	2910	2974	2545	1419	990	704	635
MAX	880	692	1410	5780	8190	5510	4040	3620	1700	1120	796	663
MIN	500	511	575	742	1140	1920	1790	1580	1150	790	633	608
AC-FT	35290	35690	62910	103100	142100	179000	176900	156500	84460	60880	43300	37770

CAL YR 1979 TOTAL 331374 MEAN 908 MAX 5260 MIN 430 AC-FT 657300
WTR YR 1980 TOTAL 563564 MEAN 1540 MAX 8190 MIN 500 AC-FT 1118000

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--At footbridge 250 ft (76 m) upstream from gaging station.

PERIOD OF RECORD.--Water years 1950-70, 1973, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1950 to September 1970.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	ACIDITY (MG/L AS CACO3)
OCT , 1979											
01...	1500	519	80	8.0	12.6	1.8	11.1	3	4	30	--
NOV											
13...	1530	578	85	7.8	4.9	.80	13.4	13	--	33	--
DEC											
10...	1545	1000	72	7.4	4.4	5.2	13.4	6	11	29	--
JAN , 1980											
07...	1530	725	90	6.9	.1	3.2	13.8	3	12	36	--
FEB											
20...	1515	2690	75	7.2	4.6	41	12.5	29	46	32	--
MAR											
10...	1550	2980	90	7.2	6.6	7.5	11.5	3	1	28	--
29...	1600	1980	69	7.1	7.8	4.1	12.4	--	--	27	5
30...	1330	1940	70	6.6	7.0	4.1	13.0	--	--	28	10
31...	1600	1920	70	6.8	7.0	3.2	12.6	--	--	28	5
APR											
07...	1440	2250	65	7.6	7.3	3.9	12.4	3	2	27	.0
MAY											
13...	1615	2780	56	7.4	12.8	4.0	10.5	3	3	19	5
18...	2015	2270	58	7.6	11.8	3.5	10.0	--	--	21	.0
19...	1700	2150	90	7.6	12.0	170	9.4	--	--	33	.0
20...	1800	2110	77	7.6	12.2	22	9.7	--	--	28	.0
29...	0945	1600	74	7.8	9.8	2.6	--	--	--	24	10
JUN											
03...	1600	1550	67	8.0	12.5	1.7	10.0	--	--	24	10
09...	1630	1430	66	8.1	15.2	1.5	9.4	3	3	25	--
17...	0945	1500	67	7.6	12.8	70	10.0	--	--	24	--
23...	1700	1270	65	7.9	15.6	10	10.2	--	--	23	--
JUL											
17...	1500	949	73	7.7	14.2	11	10.2	3	1	25	5
AUG											
13...	1715	784	76	7.7	18.6	15	9.3	40	32	28	5
SEP											
17...	0945	632	72	7.9	12.3	7.6	9.9	18	35	29	.0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT , 1979											
01...	6.6	3.4	4.5	23	.3	1.7	33	.5	4.0	.9	.1
NOV											
13...	7.1	3.8	4.8	22	.3	1.6	41	1.0	5.2	1.1	.1
DEC											
10...	6.8	3.1	4.4	23	.3	1.5	35	2.2	1.5	1.3	.1
JAN , 1980											
07...	9.0	3.3	4.2	19	.3	1.4	36	7.2	10	1.5	.1
FEB											
20...	7.4	3.5	4.3	21	.3	1.7	29	2.9	2.3	1.4	.1
MAR											
10...	6.3	3.0	4.0	22	.3	1.1	27	2.7	1.7	1.1	.1
29...	6.2	2.9	3.6	21	.3	1.3	30	3.7	1.3	1.0	.1
30...	6.1	3.1	3.5	20	.2	1.2	30	11	2.7	1.0	.1
31...	6.4	3.1	3.6	20	.3	1.3	30	7.5	1.4	.9	.1
APR											
07...	6.1	2.9	3.6	21	.3	1.1	30	1.1	2.5	1.1	.1
MAY											
13...	4.5	2.0	2.6	21	.2	1.0	21	1.3	.9	.7	.1
18...	5.0	2.3	3.0	21	.2	1.0	22	.8	1.1	1.0	.1
19...	8.1	3.1	5.4	25	.4	1.6	26	1.0	11	5.3	.1
20...	6.7	2.8	4.1	22	.3	1.3	27	1.0	6.7	2.6	.1
29...	6.0	2.3	3.7	23	.3	1.3	27	.6	6.1	1.6	.1
JUN											
03...	5.7	2.4	3.5	22	.3	1.3	33	.5	1.6	.3	.1
09...	5.8	2.6	3.5	22	.3	1.4	23	.2	6.5	1.3	.1
17...	5.7	2.6	3.4	21	.3	1.3	25	.9	3.0	1.8	.1
23...	5.6	2.4	3.4	22	.3	1.5	31	.6	2.0	1.5	.1
JUL											
17...	6.0	2.5	4.0	24	.3	1.6	43	1.3	1.1	.7	.2
AUG											
13...	6.1	3.1	3.9	22	.3	1.5	31	.9	7.3	.8	.1
SEP											
17...	6.7	3.2	4.3	22	.3	1.7	34	.6	.7	2.2	.1

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)
OCT , 1979											
01...	29	64	70	.08	89.6	.05	.03	.010	.000	.01	.00
NOV											
13...	30	72	78	.09	112	.08	.05	.000	.010	.00	.01
DEC											
10...	29	73	68	.09	197	.34	.33	.020	.010	.02	.01
JAN , 1980											
07...	28	80	79	.10	157	.22	.27	.000	.000	.00	.00
FEB											
20...	26	77	64	.10	559	1.1	1.1	.100	.060	.12	.07
MAR											
10...	27	79	60	.10	636	.53	.52	.000	.000	.00	.00
29...	30	71	64	.09	380	.20	.20	.100	.040	.12	.05
30...	30	74	65	.10	388	.80	.18	.060	.020	.07	.02
31...	31	78	66	.10	404	.20	.17	.000	.000	.00	.00
APR											
07...	29	72	64	.09	437	.11	.08	.020	.000	.02	.00
MAY											
13...	22	47	46	.06	353	.03	--	.010	.000	.01	.00
18...	24	51	51	.06	313	.02	.02	.080	.120	.10	.15
19...	25	71	75	.09	412	.06	.06	.080	.080	.10	.10
20...	25	60	65	.08	342	.03	.03	.080	.100	.10	.12
29...	27	62	54	.08	268	.02	.05	.010	.000	.01	.00
JUN											
03...	25	76	59	.10	318	.01	--	.000	--	.00	--
09...	25	55	60	.07	212	.00	.01	.000	.000	.00	.00
17...	24	69	57	.09	279	.04	.07	.150	.040	.18	.05
23...	26	60	61	.08	206	.01	.00	.000	.010	.00	.01
JUL											
17...	27	66	69	.09	169	.07	.00	.010	.030	.01	.03
AUG											
13...	29	66	70	.09	140	.00	.00	.070	.030	.08	.03
SEP											
17...	30	110	69	.15	188	.00	.00	.000	.000	.00	.00

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS TOTAL (MG/L AS PO4)
OCT , 1979										
01...	.41	.37	.42	.05	.37	.47	2.0	.020	--	.06
NOV										
13...	.35	.28	.35	.06	.29	.43	1.9	.030	--	.09
DEC										
10...	.45	.43	.47	.03	.44	.81	3.5	.040	--	.12
JAN , 1980										
07...	.99	.80	.99	.19	.80	1.2	5.3	.050	--	.15
FEB										
20...	.90	.16	1.00	.78	.22	2.1	9.2	.160	--	.49
MAR										
10...	.47	.30	.47	.17	.30	1.0	4.4	.070	--	.21
29...	.44	.29	.54	.21	.33	.74	3.2	.060	--	.18
30...	.33	.30	.39	.07	.32	1.1	5.2	.060	--	.18
31...	.25	.30	.25	.00	.30	.45	1.9	.050	--	.15
APR										
07...	.55	.59	.57	.00	.59	.68	3.0	.040	--	.12
MAY										
13...	.27	--	.28	--	--	.31	1.3	.040	--	.12
18...	2.8	1.9	2.90	.80	2.1	2.9	12	.040	--	.12
19...	3.3	2.9	3.40	.40	3.0	3.4	15	.250	--	.77
20...	2.0	1.8	2.10	.20	1.9	2.1	9.4	.080	--	.25
29...	.23	.27	.24	.00	.27	.26	1.1	.030	--	.09
JUN										
03...	.23	--	.23	.10	.13	.24	1.0	.040	--	.12
09...	.61	.14	.61	.47	.14	.61	2.7	.080	--	.25
17...	.49	--	.64	--	--	.68	3.0	.040	--	.12
23...	1.0	.26	1.00	.73	.27	1.0	4.4	.060	--	.18
JUL										
17...	.75	.32	.76	.41	.35	.83	3.6	.090	--	.28
AUG										
13...	.17	.19	.24	.02	.22	.24	1.0	.060	.06	.18
SEP										
17...	.33	.37	.33	.00	.37	.33	1.4	.060	.06	.18

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1979										
01...	.030	--	--	--	--	1.5	.2	10	14	--
NOV										
13...	.040	--	--	--	1.3	--	--	3	4.6	--
DEC										
10...	.030	--	--	--	4.3	--	--	16	43	--
JAN , 1980										
07...	.040	--	--	--	--	2.3	.1	9	17	--
FEB										
20...	.080	--	--	--	--	--	--	77	559	78
MAR										
10...	.030	--	--	--	2.0	--	--	28	225	--
29...	.040	--	--	--	--	--	--	19	102	--
30...	.040	--	--	--	--	--	--	19	99	--
31...	.030	--	--	--	--	--	--	10	51	--
APR										
07...	.050	--	--	--	--	1.9	.1	15	91	--
MAY										
13...	.030	--	--	--	--	--	--	42	315	--
18...	.030	--	--	--	--	--	--	--	--	--
19...	.030	--	--	--	--	--	--	--	--	--
20...	.040	--	--	--	--	--	--	--	--	--
29...	.020	--	--	--	--	--	--	--	--	--
JUN										
03...	.030	--	--	--	--	--	--	18	75	--
09...	.020	--	--	--	3.0	--	--	20	77	59
17...	.020	--	--	--	--	--	--	20	81	72
23...	.040	--	--	--	--	--	--	23	78	82
JUL										
17...	.050	--	--	--	--	1.3	--	20	51	98
AUG										
13...	.030	.020	.010	.03	1.3	--	--	27	57	100
SEP										
17...	.040	.020	.020	.06	3.5	--	--	32	54	97

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT , 1979										
01...	1500	1	1	0	0	0	<2	0	0	<1
DEC										
10...	1545	--	--	--	--	--	--	--	--	--
JAN , 1980										
07...	1530	1	0	1	200	200	2	0	--	<1
MAR										
10...	1550	--	--	--	--	--	--	--	--	--
29...	1600	1	0	1	200	200	10	0	0	<1
30...	1330	1	0	1	0	0	10	0	0	<1
31...	1600	1	0	1	100	90	10	0	0	<1
APR										
07...	1440	0	0	1	100	90	9	0	0	<1
MAY										
13...	1615	1	0	1	--	--	9	0	--	<1
18...	2015	1	0	1	0	0	20	0	0	1
19...	1700	2	0	2	0	0	10	1	--	<1
20...	1800	1	0	1	0	0	10	1	--	<1
29...	0945	1	0	1	0	0	20	0	--	<1
JUN										
03...	1600	1	0	2	0	0	10	0	--	<1
09...	1630	1	0	1	0	0	10	0	--	<1
17...	0945	1	0	2	0	0	10	1	0	1
23...	1700	1	0	1	0	0	20	1	0	1
JUL										
17...	1500	2	0	2	0	0	10	0	--	<1
AUG										
13...	1715	1	0	1	0	0	10	0	--	<1
SEP										
17...	0945	0	0	1	0	0	10	1	--	<1

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT , 1979										
01...	10	10	0	0	0	<3	1	0	1	180
DEC										
10...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
07...	0	0	0	1	--	<3	1	1	0	250
MAR										
10...	--	--	--	--	--	--	--	--	--	--
29...	0	0	0	2	0	<3	8	6	2	580
30...	0	0	0	2	0	<3	9	7	2	720
31...	0	0	0	1	0	<3	5	2	3	320
APR										
07...	0	0	0	3	0	<3	2	1	1	540
MAY										
13...	0	0	0	0	--	<3	4	1	3	850
18...	0	0	0	0	--	<3	7	3	4	680
19...	0	0	0	1	--	<3	21	18	3	4200
20...	0	0	0	0	--	<3	11	8	3	1100
29...	0	0	0	0	--	<3	5	--	<10	500
JUN										
03...	0	0	0	0	--	<3	4	--	<10	350
09...	0	0	0	0	--	<3	4	--	<10	450
17...	0	0	0	0	--	<3	4	--	<10	480
23...	0	0	0	0	--	<3	8	--	<10	510
JUL										
17...	0	0	0	0	--	<3	20	18	2	20
AUG										
13...	10	10	0	1	--	<3	18	15	3	950
SEP										
17...	10	10	0	0	--	<3	10	--	<10	820

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)
OCT , 1979										
01...	--	30	3	3	0	8	5	3	.1	.0
DEC										
10...	--	--	--	--	--	--	--	--	--	--
JAN , 1980										
07...	150	100	2	2	0	0	0	3	.3	.2
MAR										
10...	--	--	--	--	--	--	--	--	--	--
29...	440	140	12	12	0	20	20	5	.0	.0
30...	590	130	10	10	0	30	20	7	.0	.0
31...	180	140	4	4	0	20	10	6	.0	.0
APR										
07...	430	110	4	4	0	10	6	4	.2	.2
MAY										
13...	790	60	4	4	0	20	20	3	.8	.4
18...	600	80	3	3	0	40	20	20	.1	.0
19...	4100	70	3	3	0	90	80	10	.1	.1
20...	1000	60	5	4	1	30	20	7	.1	.0
29...	450	47	9	--	<10	0	0	3	.4	.0
JUN										
03...	300	51	5	--	<10	10	7	3	.1	.0
09...	410	41	2	2	0	10	6	4	2.4	1.1
17...	440	43	1	0	10	0	0	4	.0	.0
23...	460	55	3	0	<10	40	40	4	.0	.0
JUL										
17...	0	30	7	7	0	20	0	20	.1	.0
AUG										
13...	880	70	2	0	4	20	20	4	.4	.0
SEP										
17...	780	43	3	--	<10	20	1	19	.1	.0

DATE	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT , 1979										
01...	.1	0	0	0	0	0	0	0	0	<3
DEC										
10...	--	--	--	--	0	--	--	--	--	--
JAN , 1980										
07...	.1	0	0	0	0	0	0	30	--	<3
MAR										
10...	--	--	--	--	4	--	--	--	--	--
29...	.0	0	0	0	0	0	0	30	30	<3

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDED TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDED RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDED RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAR										
30...	.0	0	0	0	0	0	0	30	30	<3
31...	.0	0	0	0	0	0	0	20	20	5
APR										
07...	.0	0	0	0	0	0	0	20	20	<3
MAY										
13...	.4	0	0	0	0	0	0	10	5	5
18...	.7	0	0	0	0	0	0	90	90	4
19...	.0	0	0	0	0	0	0	100	--	<3
20...	.1	0	0	0	0	0	0	20	--	<3
29...	.5	0	0	0	0	0	0	20	--	<3
JUN										
03...	.1	0	0	0	0	0	0	20	--	<3
09...	1.3	0	0	0	0	0	0	20	--	<3
17...	.1	0	0	0	0	0	0	30	--	<3
23...	.0	0	0	0	0	0	0	50	--	<3
JUL										
17...	.3	0	0	0	0	0	0	0	0	10
AUG										
13...	.5	0	0	0	0	0	0	30	--	<3
SEP										
17...	.1	0	0	0	0	0	0	30	20	7

DATE	TIME	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2)
OCT , 1979					
01...	1500	17.4	18.6	1.25	.000
JAN , 1980					
07...	1530	.000	.080	.000	.000
APR					
07...	1440	.080	.080	.000	.000
JUL					
17...	1500	2.91	3.31	.250	.060

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	NOV 13,79 1530		MAR 10,80 1550		APR 7,80 1440		MAY 13,80 1615	
TOTAL CELLS/ML	180		60		250		39	
DIVERSITY: DIVISION	0.0		0.0		0.1		0.0	
.CLASS	0.0		0.0		0.1		0.0	
..ORDER	0.0		0.0		1.0		0.0	
...FAMILY	1.6		1.6		2.6		1.6	
....GENUS	1.6		1.6		2.6		1.6	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	5	2	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	65#	27	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	40#	16	--	-
....COCCONEIS	--	-	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	13	7	--	-	30	12	--	-
...DIATOMACEAE								
....OPEPHORA	--	-	--	-	15	6	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	--	-	--	-
....SYNEDRA	13	7	5	8	5	2	13#	33
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	5	8	20	8	--	-
...NAVICULACEAE								
....NAVICULA	90#	50	30#	50	--	-	13#	33
...NITZSCHIACEAE								
....NITZSCHIA	64#	36	20#	33	65#	27	13#	33
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUN 9,80 1610	JUL 17,80 1500	AUG 13,80 1715	SEP 17,80 0945
TOTAL CELLS/ML	77	13	39	670
DIVERSITY: DIVISION	0.0	0.0	0.0	0.8
.CLASS	0.0	0.0	0.0	0.8
..ORDER	0.0	0.0	0.0	0.8
...FAMILY	1.9	0.0	0.0	1.2
....GENUS	2.3	0.0	0.0	1.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	13*	100	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	13	2
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	26*	34	--	-	--	-	64	10
....SYNEDRA	13*	17	--	-	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	13*	17	--	-	--	-	--	-
...NAVICULACEAE								
....NAVICULA	13*	17	--	-	39*	100	39	6
...NITZSCHIACEAE								
....NITZSCHIA	13*	17	--	-	--	-	39	6
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	--	-	510*	77

NOTE: * = DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
= OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained and discharge measurements may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge of crest-stage partial-record stations during water year 1980

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		Pend Oreille River basin					
12396000	Calispell Creek near Dalkena, Wa.	Lat 48°14'40", long 117°20'26", in NE¼SW¼ sec.26, T.32 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, 2.4 mi (3.9 km) upstream from Calispell Lake, and 4.8 mi (7.7 km) west of Dalkena.	68.3 (177)	1950-73‡, 1974-	4-23-80	6.83	309
12396100	Winchester Creek near Cusick, Wa.	Lat 48°16'52", long 117°21'44", in NW¼ sec.15, T.32 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, at county road around Calispell Lake and 4.8 mi (7.7 km) southwest of Cusick.	16.8 (43.5)	1954-	4-20-80	10.41	72
		Methow River basin					
12447380	Pine Creek near Mazama, Wa.	Lat 48°34'48", long 120°37'33", in NE¼ sec.32, T.36 N., R.18 E., Okanogan County, Hydrologic Unit 17020008, at State Highway 20, 10 mi (16.1 km) west of Mazama.	4.63 (12.0)	1966-	5-5-80	19.40	104
		Wenatchee River basin					
12461200	East Branch Mission Creek tributary near Cashmere, Wa.	Lat 47°22'50", long 120°29'20", in SW¼ sec.20, T.22 N., R.19 E., Chelan County, Hydrologic Unit 17020011, at U.S. Forest Service road, 9.7 mi (15.6 km) south of Cashmere.	2.49 (6.45)	1955-	5- 6-80	11.05	6.2
		Yakima River basin					
12491700	Hause Creek near Rimrock, Wa.	Lat 46°40'33", long 121°04'49", in NE¼ sec.28, T.14 N., R.14 E., Yakima County, Hydrologic Unit 17030002, at State Highway 14, 0.1 mi (0.2 km) west of Tieton Ranger Station and 2.5 mi (4.0 km) east of Rimrock.	3.91 (10.1)	1955-	2-29-80	6.07	19
		Palouse River basin					
13349300	Palouse River tributary, at Colfax, Wa.	Lat 46°53'22", long 117°22'59", in SE¼SW¼ sec.10, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, at U.S. Highway 295, about 1 mi (1.6 km) west of Colfax.	2.10 (5.44)	1955-	5-30-80	22.00	182
		Klickitat River basin					
14112200	Little Klickitat River tributary near Goldendale, Wa.	Lat 45°50'15", long 120°47'50", in NW¼ sec.15, T.4 N., R.16 E., Klickitat County, Hydrologic Unit 17070106, at county road 1.5 mi (2.4 km) northeast of Goldendale.	.71 (1.84)	1960-	1-12-80	7.95	18

‡Operated as continuous-record station.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Pend Oreille River basin				
12396000 Calispell Creek	Pend Oreille River	Lat 48°14'40", long 117°20'26", in NE¼SW¼ sec.26, T.32 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, 2.4 mi (3.9 km) upstream from Calispell Lake, and 4.8 mi (7.7 km) west of Dalkena.	68.3	1950-73‡, 1974a- 1974 1976-79	1-25-74 3-17-80 8-25-80	c,d3,190 44.8 19.6
12396100 Winchester Creek	Calispell Creek	Lat 48°16'52", long 117°21'44", in NW¼ sec.15, T.32 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, at county road around Calispell Lake and 4.8 mi (7.7 km) southwest of Cusick.	16.8	1957‡, 1954a- 1964-68 1975, 1977	3-17-80	9.71
		Colville River basin				
12408000 Colville River	Franklin D. Roosevelt Lake	Lat 48°19'11", long 117°49'05",in NW¼NW¼ sec.31, T.33 N., R.40 E., Stevens County, Hydrologic Unit 17020003, upstream from county road bridge, just downstream from mouth of Blue Creek at town of Blue Creek, 5.5 mi (8.8 km) northwest of Chewelah.	428	1923-24‡, 1926, 1958-59 1960-65‡ 1975-77 1979	7- 8-80 8-29-80	63.2 46.0
Patchen Creek (formerly Big Horn Creek, Lake Thomas tributary)	Lake Thomas	Lat 48°38'32", long 117°31'05", in NW¼ sec.9, T.36 N., R.42 E., Stevens County, Hydrologic Unit 17020003, at State Highway 294, 6.0 mi (9.7 km) southwest of Tiger.	1.65	1954-73a, 1963-65, 1967-69 1971	4-20-65 4-20-65	c4.60 c5.37
Narcisse Creek	Little Pend Oreille River	Lat 48°30'52", long 117°43'57", in SE¼SW¼ sec.23, T.35 N., R.40 E., Stevens County, Hydrologic Unit 17020003, at State Highway 294, 8 mi (12.9 km) east of Colville	11.1	1954-73a 1961 1966-69 1971	5-18-61	c32.4
		Spokane River basin				
12427000 Little Spokane River	Spokane River	Lat 48°01'20", long 117°16'19", in NW¼SE¼ sec.8, T.29 N., R.44 E., Spokane County, Hydrologic Unit 17010308, 0.6 mi (1.0 km) upstream from, and northeast of Elk, 3.0 mi (4.8 km) upstream from Dry Creek, and at mile 37.6 (60.5 km).	115	1948-71‡ 1972-77a, 1973, 1977 1979	8- 5-80 8-14-80 8-21-80	34.0 32.2 35.2
Little Spokane River	do.....	Lat 48°01'01", long 117°16'32", in NW¼NE¼ sec.17, T.29 N., R.44 E., Spokane County, Hyrologic Unit 17010308, at county road crossing, at Elk.	--	--	8-29-80 9- 5-80 9-19-80	33.2 36.2 35.3
12429600 Little Spokane River	do.....	Lat 47°53'22", long 117°21'16", in NE¼ sec.34, T.28 N., R.43 E., Spokane County, Hydrologic Unit 17010308, at Chattaroy, 200 ft (61 m) downstream from U.S. Highways 2 and 195, and 200 ft (61 m) upstream from Deer Creek.	301	1948 1952, 1955-58, 1960-70, 1973, 1977, 1979	5-30-80 8- 5-80 8-14-80 8-21-80	145 52.9 46.1 51.3
12432000 Little Spokane River	do.....	Lat 47°46'59", long 117°31'43", in SE¼NW¼ sec.5, T.26 N., R.42 E., Spokane County, Hydrologic Unit 17010308, at State Highway 291 crossing, 1.1 mi (1.8 km) upstream from mouth, 5.3 mi (8.5 km) west of Dartford.	700	1903-05, 1912, 1913-14‡ 1920-21, 1923-24, 1930-32, 1947-48, 1953, 1955-58, 1960-73, 1977-79	3-28-80 8- 5-80 8-14-80 8-21-80	707 371 371 381
		Blue Creek basin				
Blue Creek	Spokane River	Lat 47°55'33", long 118°04'47", in NW¼SW¼ sec.18, T.28 N., R.38 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, 50 ft (15.2 m) upstream from mouth of unnamed tributary, and 2.2 mi (3.5 km) southwest of Turtle Lake.	--	--	5- 1-80	3.00
Unnamed Tributary	Blue Creek	Lat 47°55'29", long 118°04'48", in NE¼SW¼ sec.13, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, 50 ft (15.2 m) upstream from mouth, and 2 mi (2.1 km) southwest of Turtle Lake.	--	--	5- 1-80	.50
Blue Creek	Spokane River	Lat 47°55'28", long 118°05'18", in NW¼SE¼ sec.13, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation 100 ft (30.5 m) upstream from mouth of unnamed tributary, and 2.4 mi (3.9 km) southwest of Turtle Lake.	--	--	6- 6-80 7-16-80 8-13-80 9-25-80	1.12 .50 .22 .08

‡ Operated as continuous-record station.
a Operated as crest-stage station.
c Not previously published.
d Slope area computation.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		Blue Creek basin--Continued				
Unnamed Tributary	Blue Creek	Lat 47°55'48", long 118°05'20", in NW¼NE¼ sec.13, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, 0.5 mi (0.8 km) upstream from mouth, and 2.3 (3.7 km) southwest of Turtle Lake.	--	--	7-16-80 8-13-80 9-25-80	0.04 .06 .07
Do.....	do....	Lat 47°55'47", long 118°05'30", in NE¼NW¼ sec.13, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation 1,000 ft (305 m) upstream from mouth, and 2.4 mi (3.9 km) southwest of Turtle Lake.	--	--	6- 6-80 7-16-80 8-13-80 9-25-80	.04 .02 .01 .01
Do.....	do....	Lat 47°56'02", long 118°05'35", in SE¼SW¼ sec.12, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, at Midnight Mine settling pond outlet, and 2.5 mi (4.0 km) west of Turtle Lake.	--	--	6- 6-80 7-16-80 8-13-80 9-25-80	.01 .01 .02 .02
Do.....	do....	Lat 47°55'48", long 118°05'35", in NE¼NW¼ sec.13, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation 0.5 mi (0.8 km) upstream from mouth, and 2 mi (3.2 km) southwest of Turtle Lake.	--	--	7-16-80 8-13-80 9-25-80	.05 .05 .04
Do.....	do....	Lat 47°55'31", long 118°05'23", in NW¼SE¼ sec.13, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, 500 ft (152 m) upstream from mouth, and 2 mi (3.2 km) southwest of Turtle Lake.	--	--	5- 1-80 6- 6-80 7-16-80 8-13-80 9-25-80	.39 .29 .15 .13 .16
Blue Creek	Spokane River	Lat 47°55'27", long 118°05'20", in NW¼SE¼ sec.13, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation 100 ft (30 m) downstream of mouth of unnamed tributary, and 2.4 mi (3.9 km) southwest of Turtle Lake.	--	--	5- 8-80 7-16-80 8-13-80 9-25-80	4.55 .60 .38 .30
		Sanpoil River basin				
12434590 Sanpoil River	Franklin D. Roosevelt Lake	Lat 48°05'04", long 118°41'25", in NW¼SW¼ sec.20, T.30 N., R.33 E., Ferry County, Hydrologic Unit 17020004, Colville Indian Reservation, at county road crossing, 0.4 mi (0.6 km) upstream from Jack Creek and 0.5 mi (0.8 km) north of Keller.	900	1963, 1975-77	4- 1-80 6- 2-80 8- 4-80	399 1,170 83.4
		Okanogan River basin				
12443600 Similkameen River	Okanogan River	Lat 48°56'05", long 119°26'27", in NE¼SW¼ sec.28, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020007, at Twelfth Avenue bridge in Oroville.	3,590	1929-30, 1935, 1937, 1939-40, 1943-44, 1975-79	5- 4-80	10,700
12446000 Okanogan River	Columbia River	Lat 48°21'48", long 119°34'36", in SW¼SW¼ sec.16, T.33 N., R.26 E., Okanogan County, Hydrologic Unit 1702006, at Oak Street (formerly U.S. Highway 97) bridge in Okanogan, 150 ft (46 m) northwest of Great Northern Railway depot, and 0.3 mi (0.5 km) upstream from Salmon Creek.	b7,900	1911-25‡, 1976, 1979	5-29-80	10,100
Summit Creek	Loup Loup Creek	Lat 48°22'34", long 119°46'10", in SW¼NW¼ sec.12, T.33 N., R.24 E., Okanogan County, Hydrologic Unit 17020006, at road crossing 0.4 mi (0.6 km) upstream from Loup Loup Creek, and 7.0 mi (11.3 km) northwest of Malott.	17.4	1974-76a	7-31-75 10-21-76	c4.27 c3.42
		Methow River basin				
Early Winters Creek	Methow River	Lat 48°35'55", long 120°26'31", in NE¼NW¼ sec.26, T.10 N., R.19 E., Okanogan County, Hydrologic Unit 17020008, Okanogan National Forest, at State Highway 20 bridge at Early Winters Ranger Station, 0.3 mi (0.5 km) above mouth and 1.7 mi (2.7 km) northwest of Mazama. Note.--New bridge is at slightly different location than Mazama quad sheet indicates.	--	1975-79	10- 1-79 6- 4-80	13.3 335
Methow River	Columbia River	Lat 48°35'23", long 120°24'20", in NE¼SE¼ sec.25, T.36 N., R.19 E., Okanogan County, Hydrologic Unit 17020008, Okanogan National Forest, at State Highway 20 bridge, 0.2 mi (0.3 km) southwest of Mazama and at mile 65.3 (105.1 km).	363	1942, 1967,	10- 1-79 6- 4-80 1970-72, 1975-79	31.6 1,510

‡ Operated as continuous-record station.
a Operated as crest-stage station.
b Approximately.
c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		Methow River basin--Continued				
Chewack River	Methow River	Lat 48°33'53", long 120°10'35", in SE¼NW¼ sec.2, T.35 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, at road crossing, 0.9 mi (1.4 km) downstream from Boulder Creek and 5.4 mi (8.7 km) north of Winthrop.	466	1942, 1978-79	10- 2-79 6- 3-80	33.9 1,400
12448500 Methow River	Columbia River	Lat 48°28'26", long 120°10'35", in NE¼SW¼ sec.2, T.34 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, at State Highway 20 bridge, 1,500 ft (457 m) downstream from mouth of Chewack River, at south edge of Winthrop.	1,007	1912‡ 1948 1971-72‡ 1977-79	5-13-80 9- 2-80	7,690 293
12449500 Methow River	do....	Lat 48°21'55", long 120°06'54", in NE¼NW¼ sec.17, T.33 N., R.22 E., Okanogan County, Hydrologic Unit 17020008, 1,300 ft (396 m) below mouth of Twisp River, 0.3 mi (0.5 km) east of center of Twisp, and at mile 40.0 (64.4 km).	1,301	1919-62‡ 1967 1970 f1976 f1978-79	5-13-80 9- 2-80	8,310 332
Twisp River	Methow River	Lat 48°22'12", long 120°08'51", in SE¼SE¼ sec.12, T.33 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, at county road bridge, 0.8 mi (1.3 km) west of Twisp city limits and at mile 1.6 (2.6 km).	245	1975-79‡	10- 3-79 8- 5-80	16.0 76.5
		Entiat River basin				
12452990 Entiat River	Columbia River	Lat 47°39'48", long 120°14'58", in NW¼SE¼ sec.18, T.25 N., R.21 E., Chelan County, Hydrologic Unit 17020010, at bridge 1.2 mi (1.9 km) west of Entiat High School and at mile 1.5 (2.4 km).	419	1971-72, 1975-79	10- 9-79 6-10-80	84.2 1,180
		Wenatchee River basin				
12457800 Wenatchee River	Columbia River	Lat 47°40'34", long 120°43'58", in NE¼SW¼ sec.9, T.25 N., R.17 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, at U.S. Highway 2 crossing and Tumwater campground, 0.4 mi (0.6 km) downstream from mouth of Chiwaukum Creek 4.1 mi (6.6 km) south of Winton, and at mile 35.5 (57.1 km).	--	1978-79	10-10-79 6-11-80	362 5,010
		Douglas Creek basin				
Rattlesnake Springs	Rattlesnake Creek	Lat 47°27'03", long 119°45'29", NW¼NE¼ sec.36, T.23 N., R.24 E., Douglas County, Hydrologic Unit 17020012, at spring, 7.8 mi (12.6 km) northeast of Palisades.	--	1978-79	10-17-79 12-12-79 3- 6-80 4-30-80 6-25-80 8-21-80	0 0 .15 .19 .05 .03
		Crab Creek basin				
Lords Creek	Crab Creek	Lat 47°22'34", long 118°07'12", in NE¼NE¼ sec.26, T.22 N., R.37 E., Lincoln County, Hydrologic Unit 17020013, 16 mi (26 km) upstream from mouth, 8.5 mi (13.7 km) northwest of Sprague.	--	--	7- 3-78	c,d5,140
Connawai Creek tributary	Connawai Creek	Lat 47°36'58", long 118°45'40", in SW¼SW¼ sec.35, T.25 N., R.32 E., Lincoln County, Hydrologic Unit 17020013, at county road, 0.2 mi (0.3 km) north of State Highway 21 and 9 mi (14 km) south of Govan.	.25	1958-77a	3-18-69	c15.2
12465160 Sinking Creek	Wilson Creek	Lat 47°43'18", long 118°46'30", in NW¼SE¼ sec.27, T.26 N., R.32 E., Lincoln County, Hydrologic Unit 17020013, 0.5 mi (0.8 km) upstream from mouth, 2.5 mi (4.0 km) southeast of Govan.	--	1961-62	8- 6-80 8-20-80	0 0

‡ Operated as continuous-record station.
a Operated as crest-stage station.
c Not previously published.
d Slope area computation.
f Published these years as at a site 2.7 miles farther downstream, in error.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
Palouse River basin						
Spring Creek	Union Flat Creek	Lat 46°31'41", long 117°05'01", in NE¼NE¼ sec.18, T.12 N., R.46 E., Whitman County, Hydrologic Unit 17060108, 0.3 mi (0.5 km) south of Uniontown, 1.1 mi (1.8 km) upstream from mouth.	10.1	--	2-12-79	d1,080
Downing Creek	Palouse River	Lat 47°00'32", long 117°42'56", in NE¼SW¼ sec.36, T.18 N., R.40 E., Whitman County, Hydrologic Unit 17060108, 0.2 mi (0.3 km) upstream from mouth, 2.9 mi (4.7 km) southwest of Willado.	--	--	7- 7-78	c,d1,010
Rebel Flat Creek Tributary	Rebel Flat Creek	Lat 46°57'07", long 117°40'06", in NW¼SW¼ sec.20, T.17 N., R.41 E., Whitman County, Hydrologic Unit 17060108, 1.9 mi (3.1 km) upstream from the mouth, and 1.5 mi (2.4 km) northeast of Endicott.	--	--	7- 7-80	c,d2,320
Cottonwood Creek	Rock Creek	Lat 47°06'33", long 117°35'56", in SE¼SE¼ sec.26, T.19 N., R.41 E., Whitman County, Hydrologic Unit 17060109, 1.3 mi (2.1 km) northwest of St. John, 1.8 mi (2.9 km) upstream from Pleasant Valley Creek.	--	--	7- 7-78	c,d1,200
Yakima River basin						
12491700 Hause Creek	Tieton River	Lat 46°40'33", long 121°04'49", in NE¼ sec.28, T.14 N., R.14 E., Yakima County, Hydrologic Unit 17030002, at State Highway 14, 0.1 mi (0.2 km) west of Tieton Ranger Station and 2.5 mi (4.0 km) east of Rimrock.	3.91	1955-76a, 1967, 1969, 1971, 1976-79	12- 4-79 4-23-80 6-19-80 7-20-80	e.5 4.5 1.2 .32
Bear Canyon	do....	Lat 46°23'30", long 120°54'25", in NW¼NW¼ sec.13, T.14 N., R.15 E., Yakima County, Hydrologic Unit 17030002, 1.0 mi (1.6 km) upstream from State Highway 12, 1.1 mi (1.8 km) upstream from mouth and 4.6 mi (7.4 km) northeast of Rimrock.	2.62	--	7- 8-80	2.020
12500500 North Fork Ahtanum Creek	Ahtanum Creek	Lat 46°33'52", long 120°54'57" in SW¼SE¼ sec.35, T.13 N., R.15 E., Yakima County, Hydrologic Unit 17030003, 150 ft (46 m) downstream from Nasty Creek, 3.2 mi (5.1 km) northwest of Tampico, 20 mi (32.2 km) west of Yakima, and at mile 5.3 (8.5 km).	68.9	1907-78‡ 1979a	3-29-80 8-19-80 9-15-80	77.2 25.9 20.7
12501000 South Fork Ahtanum Creek	do....	Lat 46°30'40", long 120°54'55", in SE¼ sec.23, T.12 N., R.15 E., Yakima County, Hydrologic Unit 17030003, at Conrad Ranch, 2.7 mi (4.3 km) southwest of Tampico, 20.3 mi (32.7 km) southwest of Yakima, and at mile 4.0 (6.4 km).	24.8	1915-78‡	3-29-80 6-11-80	25.9 31.4
12506000 Toppenish Creek	Yakima River	Lat 46°18'38", long 120°47'20", in SE¼NW¼ sec.35, T.10 N., R.16 E., Hydrologic Unit 17030003, Yakima County, 40 ft (64 m) above diversion, 5.7 mi (9.2 km) southwest of White Swan.	122	1977	3-30-80 5-19-80 5-20-80 5-23-80 6-12-80 6-18-80 6-24-80 8-19-80 9-16-80	188 112 102 93.5 52.5 50.8 59.5 20.8 18.5
12506300 North Fork Simcoe Creek	Simcoe Creek	Lat 46°27'27", long 120°52'06", in SW¼NE¼ sec.7, T.11 N., R.16 E., Yakima County, Hydrologic Unit 17030003, 0.9 mi (1.4 km) above mouth, just above diversion 8.3 mi (13.4 km) from White Swan.	24.8	1971-72‡ 1977	3-30-80 5-19-80 5-20-80 5-23-80 5-28-80 6-12-80	30.9 15.5 14.6 12.6 11.9 10.5
12511520 Yakima River	Columbia River	Lat 46°21'32", long 119°23'42", in NW¼NW¼ sec.14, T.10 N., R.27 E., Benton County, Hydrologic Unit 17030003, 2.4 mi (3.9 km) downstream from Horn Rapids Dam, 4.0 mi (6.4 km) northwest of Richland, and at mile 16.15 (26.0 km).	--	1978-79	8- 6-80 9-11-80	1,180 1,280
Walla Walla River basin						
14017600 Touchet River	Walla Walla River	Lat 46°07'29", long 118°40'59", in NE¼NE¼ sec.33, T.7 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, at U.S. Highway 4[illegible] crossing, 0.5 mi (0.8 km) west of Touchet, 0.6 mi (1.0 km) above mouth.	747	1962-65, 1972-75, 1977-79	10-11-79 12-13-79 3-13-80 5-19-80 7- 1-80 8-27-80	3.61 157 566 214 54.4 2.93

‡ Operated as continuous-record station.
a Operated as crest-stage station.
c Not previously published.
d Slope area computation.
e Estimated.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		Walla Walla River basin--Continued				
Walla Walla River	Columbia River	Lat 46°02'15", long 118°45'55", in SE¼SE¼ sec.35, T.7 N., R.32 E., Walla Walla County, Hydrologic Unit 17070102, at bridge 0.9 mi (1.4 km) downstream from Warm Springs Canyon, 2.5 mi (4.0 km) downstream from station 14018500 3.7 mi (6.0 km) southwest of Touchet, and at mile 15.7 (25.3 km).	b1,690	1979	10-11-79	7.49
		Four Mile Creek basin				
Fourmile Creek	Columbia River	Lat 45°56'56", long 119°23'33", in NE¼SE¼NE¼ sec.2, T.5 N., R.27 E., Benton County, Hydrologic Unit 17070101, at State Highway 14 bridge, 2.7 mi (4.3 km) west of Plymouth.	--	--	4-18-80 5-13-80 6-16-80 7-15-80 8-13-80 9-15-80	0 0 0 0 0 0
		Glade Creek basin				
Glade Creek	do....	Lat 45°53'48", long 119°41'41" in NW¼NE¼ sec.28, T.5 N., R.25 E., Benton County, Hydrologic Unit 17070101, 0.2 mi (0.3 km) upstream from State Highway 14 crossing, 0.5 mi (0.8 km) above mouth, 5.5 mi (8.8 km) southwest of Patterson.	428	1977	4-18-80 5-14-80 6-16-80 7-15-80 8-13-80 9-15-80	10.3 8.46 9.37 8.77 8.69 11.1
		Rock Creek basin				
14036600 Rock Creek	do....	Lat 45°44'55", long 120°26'04", in W½NE¼ sec.16, T.3 N., R.19 E., Klickitat County, Hydrologic Unit 17070101, at county highway bridge.	213	1962-68‡ 1973, 1977	4-18-80 5-14-80 6-16-80 7-15-80 8-13-80 9-15-80	46.6 17.4 7.26 1.20 e.03 0
		Klickitat River basin				
Outlet Creek	Klickitat River	Lat 46°00'59", long 121°11'20", in SE¼SW¼ sec.9, T.6 N., R.13 E., Klickitat County, Hydrologic Unit 17070106, 0.9 mi (1.4 km) upstream from Outlet Falls, 4.8 mi (7.7 km) east of Glenwood.	128	1974-75, 1977	3-29-80 4- 9-80 5-19-80	137 229 31.2
Klickitat River	Columbia River	Lat 45°59'10", long 121°07'26", on line between sec.24 and sec.25, T.6 N., R.13 E., Klickitat County, Hydrologic Unit 17070106, 0.1 mi (0.2 km) upstream from Summit Creek, at bridge on St. Regis Paper Company road, 9.6 mi (15.4 km) southeast of Glenwood, and at mile 36.8 (59.2 km).	--	1974	3-29-80 4- 9-80	1,540 2,780

‡ Operated as continuous-record station.
b Approximately.
e Estimated.

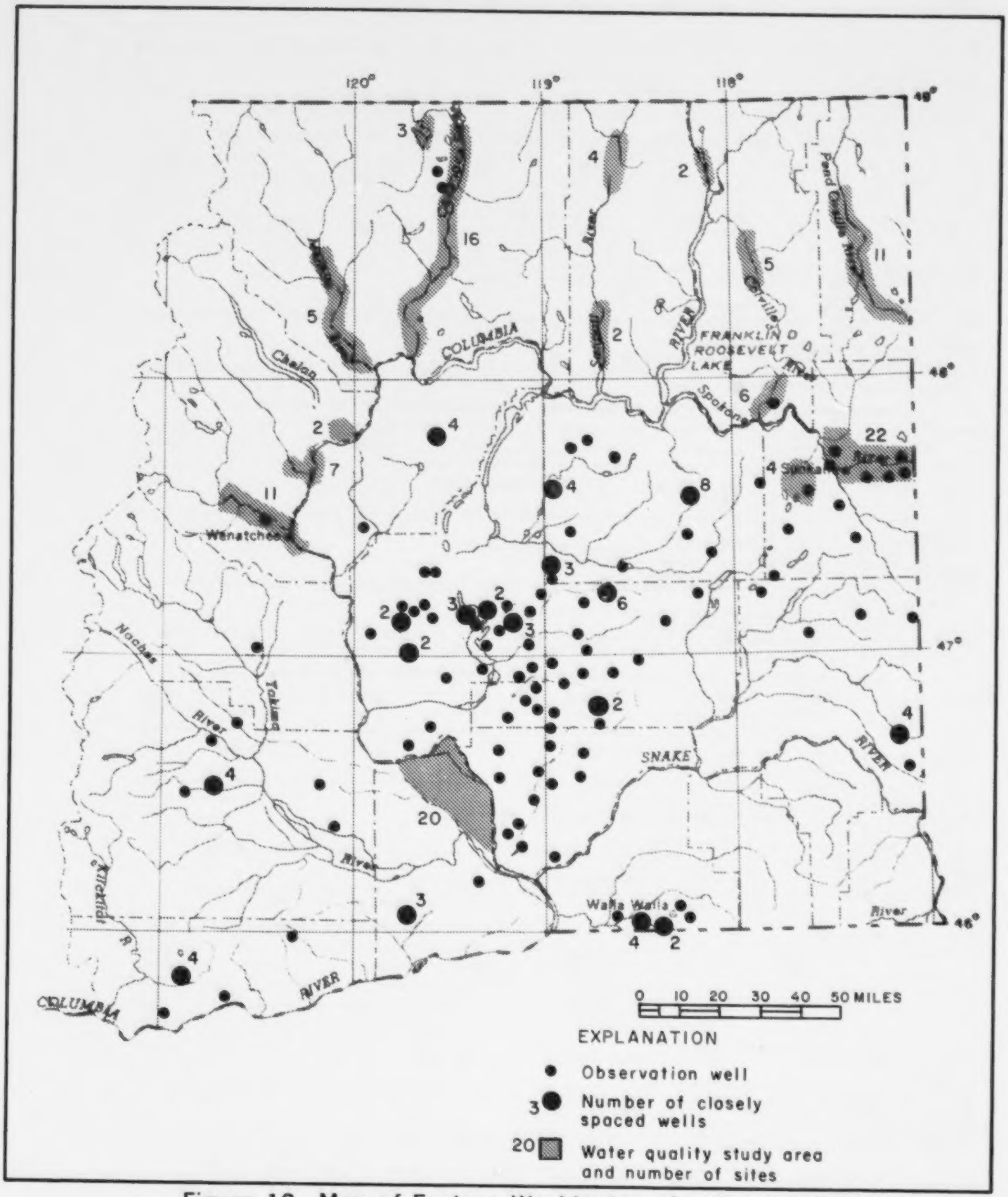
120°
119°
118°
49°
48°
47°
46°
COLUMBIA
Chelan
Wenatchee
Naches
Yakima
River
Klickitat
R
COLUMBIA
RIVER
River
SNAKE
RIVER
River
Walla Walla
FRANKLIN D ROOSEVELT LAKE
RIVER
Spokane
Colville River
Pend Oreille River
Sanpoil
River
Spokane
0 10 20 30 40 50 MILES
EXPLANATION
● Observation well
3● Number of closely spaced wells
20 ▨ Water quality study area and number of sites

Figure 19. Map of Eastern Washington showing locations of ground-water level observations.

ADAMS COUNTY

464603119085201. Local number, 15/29-26C1.
LOCATION.--Lat 46°46'03", long 119°08'52", Hydrologic Unit 17020016, at Othello.
Owner: Brick Patterson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well. Diameter 6 in (150 mm), depth 257 ft (78.3 m), cased to 150 ft (45.7 m).
DATUM.--Altitude of land-surface datum is 1,030 ft (314 m).
PERIOD OF RECORD.--September 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 93.6 ft (28.53 m) below land-surface datum, June 26, 1980; lowest measured, 197.91 ft (60.323 m) below land-surface datum, Apr. 2, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	98.8	Feb. 6, 1980	165.0	May 2, 1980	132.2	Aug. 22, 1980	125.5
Dec. 13	168.8	Mar. 5	167.5A	June 26	93.6		

464413118585601. Local number, 15/31-31N1.
LOCATION.--Lat 46°44'13", long 118°58'56", Hydrologic Unit 17020016.
Owner: Burl Egbert.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 280 ft (85.3 m), cased to 80 ft (24.4 m).
DATUM.--Altitude of land-surface datum is 1,154 ft (351.7 m).
PERIOD OF RECORD.--October 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 160.0 ft (48.77 m) below land-surface datum, Sept. 29, 1976; lowest measured, 182.0 ft (55.49 m) below land-surface datum, Sept. 23, 1980

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 28, 1979	175.4	Mar. 27, 1980	177.2	July 29, 1980	176.2	Sept. 23, 1980	182.0
		June 2	177.2				

464740118444001. Local Number 15/32-13D1.
LOCATION.--Lat 46°47'40", long 118°44'40", Hydrologic Unit 17020016.
Owner: State of Washington, Department of Highways.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 12 in (300 mm), depth 602 ft (183.5 m), cased to 63 ft (19.2 m).
DATUM.--Altitude of land-surface datum is 1,216 ft (370.6 m).
PERIOD OF RECORD.--June 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 170.12 ft (51.853 m) below land-surface datum, Nov. 25, 1962; lowest measured, 211.4 ft (64.43 m) below land-surface datum, Aug. 25, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Feb. 7, 1980	208.4	May 5, 1980	209.4	June 27, 1980	210.5A	Aug. 25, 1980	211.4
Mar. 20	208.6						

465149119062801. Local number, 16/30-19E1.
LOCATION.--Lat 46°51'49", long 119°06'28", Hydrologic Unit 17020016.
Owner: K. Summerville.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 487 ft (148.4 m).
DATUM.--Altitude of land-surface datum is 1,160 ft (354 m).
PERIOD OF RECORD.--May 1958, March 1963, March 1968, April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.18 ft (13.16 m) below land-surface datum, May 2, 1980; lowest measured, 189.90 ft (57.882 m) below land-surface datum, May 12, 1958.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	45.28	May 2, 1980	43.18	June 26, 1980	48.68	Aug. 22, 1980	46.58

465100119001502. Local number, 16/30-26A2.
LOCATION.--Lat 46°51'00", long 119°00'15", Hydrologic Unit 17020016.
Owner: G. W. Kliphardt.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 600 ft (183 m).
DATUM.--Altitude of land-surface datum is 1,359 ft (414.2 m).
PERIOD OF RECORD.--April 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 268.71 ft (81.903 m) below land-surface datum, Apr. 22, 1975; lowest measured, 471A ft (143.56m) below land-surface datum, June 26, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	439.8	Feb. 6, 1980	341.0	May 1, 1980	409A	Aug. 22, 1980	354
Dec. 3	370.9	Mar. 5	331.4	June 26	471A		

A Well being pumped.

ADAMS COUNTY--Continued

465250118450001. Local number, 16/32-14A1.

LOCATION.--Lat 46°52'48", long 118°45'01", Hydrologic Unit 17020016.

Owner: D. E. Phillips.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 765 ft (233.2 m), cased to 67 ft (20.4 m).

DATUM.--Altitude of land-surface datum is 1,463 ft (445.9 m).

PERIOD OF RECORD.--October 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 275.4 ft (83.94 m) below land-surface datum, Feb. 7, 1978; lowest measured, 503 ft (153.3 m) below land-surface datum, Aug. 25, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	482A	Mar. 10, 1980	422	June 27, 1980	484A	Aug. 25, 1980	503A
Feb. 7, 1980	431	May 5	460A				

465910118581001. Local number, 16/32-25A1.

LOCATION.--Lat 46°51'00", long 118°43'53", Hydrologic Unit 17020016.

Owner: D. E. Phillips.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 812 ft (247.5 m), cased to 82 ft (25.0 m).

DATUM.--Altitude of land-surface datum is 1,457 ft (444.1 m).

PERIOD OF RECORD.--April 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 312.16 ft (95.146 m) below land-surface datum, Sept. 3, 1974; lowest measured, 491 ft (149.7 m) below land-surface datum, Aug. 25, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	475A	Mar. 10, 1980	426	June 27, 1980	486A	Aug. 25, 1980	491A
Feb. 7, 1980	440	May 5	463				

465700118510001. Local number, 17/32-19E1.

LOCATION.--Lat 46°57'00", long 118°51'00", Hydrologic Unit 17020015, at Roxboro.

Owner: The Milwaukee Road.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 258 ft (78.6 m).

DATUM.--Altitude of land-surface datum is 1,260 ft (384 m).

PERIOD OF RECORD.--June 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.96 ft (31.992 m) below land-surface datum, Jan. 29, 1963; lowest measured, 219.9 ft (67.03 m) below land-surface datum, Aug. 29, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	219.0	Feb. 7, 1980	199.8	May 5, 1980	206.8	Aug. 25, 1980	217.5
Dec. 14	209.8	Mar. 10	202.1	June 27	218.6		

465730118410001. Local number, 17/33-17R1.

LOCATION.--47°57'30", 118°41'00", Hydrologic Unit, 17020015.

Owner: D. E. Phillips.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 184 ft (56.1 m), cased to 80 ft (24.4 m).

DATUM.--Altitude of land-surface datum is 1,310 ft (399 m).

REMARKS.--Pump installed December 1974.

PERIOD OF RECORD.--April 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.60 ft (9.327 m) below land-surface datum, Dec. 5, 1976; lowest measured 85.70 ft (26.12 m) below land-surface datum, Dec. 14, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	77.1A	Feb. 7, 1980	39.4	May 5, 1980	35.6	Aug. 8, 1980	43.2
Dec. 14	85.70A	Mar. 10	36.37	June 27	36.0		

465824118354903. Local number 17/34-7N1.

LOCATION.--Lat 46°58'24", long 118°35'49", Hydrologic Unit 17020015.

Owner: City of Lind.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 16 to 12 in (400 to 300 m), depth 686 ft (209.1 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 1,404 ft (427.9 m).

PERIOD OF RECORD.--June 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 105.60 ft (32.187 m) below land-surface datum, Apr. 7, 1969; lowest measured, 140.89 ft (42.94 m) below land-surface datum, Mar. 10, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	139.4	Feb. 7, 1980	136.72	May 5, 1980	132.57	Aug. 25, 1980	136.83
Dec. 14	137.26	Mar. 10	140.89	June 27	136.60		

A Well being pumped.

ADAMS COUNTY--Continued

470451118582001. Local number, 18/31-6F1.
LOCATION.--Lat 47°04'51", long 118°58'20", Hydrologic Unit 17020015.
Owner: Chas. Forbes.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 15 in (375 mm), depth 254 ft (77.4 m), cased to 47 ft (14.3 m).
DATUM.--Altitude of land-surface datum is 1,166 ft (355.4 m).
PERIOD OF RECORD.--April 1951, December 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.0 ft (8.230 m) below land-surface datum, Apr. 30, 1951; lowest measured, 142.4 ft (43.40 m) below land-surface datum, Oct. 14, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	141.8	Mar. 10, 1980	105.8				

470232118572901. Local number, 18/31-20D1.
LOCATION.--Lat 47°02'32", long 118°57'29", Hydrologic Unit 17020015.
Owner: J. Fox Estate.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unusued water-table well, diameter 6 in (150 mm), depth 150 ft (45.7 m).
DATUM.--Altitude of land-surface datum is 1,255 ft (382.5 m).
PERIOD OF RECORD.--October 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.32 ft (16.557 m) below land-surface datum, Oct. 4, 1973; lowest measured, 104.5 ft (31.85 m) below land-surface datum, May 5, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
May 5, 1980	104.5C	June 17, 1980	99.2	Aug. 25, 1980	90.4		

470815118222202. Local number, 19/35-14Q2.
LOCATION.--Lat 47°08'15", long 118°22'22", Hydrologic Unit 17020015, at Ritzville.
Owner: Ritzville No. 2.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 508 ft (154.8 m), cased to 140 ft (42.7 m).
DATUM.--Altitude of land-surface datum is 1,805 ft (550.2 m).
PERIOD OF RECORD.--October 1962 to October 1973, March 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Higfhest water level measured, 119.9 ft (36.55 m) below land-surface datum, June 25, 1967; lowest measured, 190.6 ft (58.09 m) below land-surface datum, Sept. 6, 1972.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	144.4	Mar. 19, 1980	142.7				

471217118441802. Local number, 20/32-25C2.
LOCATION.--lat 47°12'17", long 118°44'18", Hydrologic Unit 17020015.
Owner: Weldon Walter.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 706 ft (215.2 m).
DATUM.--Altitude of land-surface datum is 1,791 ft (545.9 m).
PERIOD OF RECORD.--October 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 251.55 ft (76.672 m) below land-surface datum, Feb. 27, 1965; lowest measured, 356.5 ft (108.66 m) below land-surface datum, Oct. 17, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	356.5	Mar. 10, 1980	322.4				

471347118410101. Local number, 20/33-16E1.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test water-table well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 70 to 94 ft (21.3 to 28.7 m).
DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 80.34 ft (24.488 m) below land surface datum, June 20, 1975; lowest measured, 93.38 ft (28.46 m) below land-surface datum, Apr. 23, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	85.3	Feb. 4, 1980	86.0	Apr. 20, 1980	85.5	Aug. 19,1980	85.4
Dec. 10	85.4	Mar. 10	85.4	June 23	85.4		

C Nearby well being pumped.

ADAMS COUNTY--Continued

471347118410102. Local number, 20/33-16E2.
LOCATION.--47°13'47", 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 158 to 183 ft (48.2 to 55.8 m).
DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.35 ft (32.720 m) below land-surface datum, Mar. 23, 1972; lowest measured, 142.2 ft (43.34 m) below land-surface datum, June 23, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	141.4	Feb. 4, 1980	139.1	Apr. 29, 1980	138.0	Aug. 19, 1980	138.5
Dec. 10	141.4	Mar. 10	139.1	June 23	142.2		

471347118410103. Local number, 20/33-16E3.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 282 to 299 ft (86.0 to 91.1 m).
DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
REMARKS.--Water-level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.89 ft (33.494 m) below land-surface datum, Feb. 23, 1972; lowest measured, 152.75 ft (46.558 m) below land-surface datum, Oct. 10, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	152.6	Feb. 4, 1980	150.6	Apr. 29, 1980	148.4	Aug. 19, 1980	150.8
Dec. 10	151.7	Mar. 10	149.2	June 23	151.4		

471347118410104. Local number, 20/33-16E4.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 352 to 401 ft (107.3 to 122.2 m).
DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 106.46 ft (32.449 m) below land-surface datum, Mar. 23, 1972; lowest measured, 138.3 ft (42.15 m) below land-surface datum, Oct. 17, 1979, Aug. 27, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	138.3	Feb. 4, 1980	137.1	Apr. 29, 1980	134.4	Aug. 19, 1980	135.2
Dec. 10	138.1	Mar. 10	135.5	June 23	134.4		

471347118410105. Local number, 20/33-16E5.
LOCATION.--lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 586 to 616 ft (178.6 to 187.8 m).
DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
REMARKS.--Water measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 112.35 ft (34.244 m) below land-surface datum, Feb. 23, 1972; lowest measured, 299.9 ft (92.41 m) below land-surface datum, June 25, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 27, 1979	281.2	Feb. 4, 1980	243.3	Apr. 29, 1980	267.6	Aug. 19, 1980	260.4
Dec. 10	253.7	Mar. 10	237.8	June 23	288.0		

471347118410106. Local number, 20/33-16E6.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 676 to 701 ft (206.0 to 213.7 m).
DATUM.--Altitude of land-surface datum is 1,670 ft (509 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 279.19 ft (85.097 m) below land-surface datum, Apr. 21, 1971; lowest measured, 396.6 ft (120.88 m) below land-surface datu[illegible]ct. 10, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	386.9	Feb. 4, 1980	354.1	Apr. 29, 1980	363.9	Aug. 19, 1980	373.1
Dec. 10	367.8	Mar. 10	346.0	June 23	394.8		

ADAMS COUNTY--Continued

471426118090401. Local number, 20/37-9J1.
LOCATION.--Lat 47°14'26", long 118°09'04", Hydrologic Unit 17020013, at Keystone.
Owner: Burlington Northern.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, depth 402 ft (122.5 m).
DATUM.--Altitude of land-surface datum is 1,935 ft (589.8 m).
PERIOD OF RECORD.--November 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 105.25 ft (32.080 m) below land-surface datum, Apr. 10, 1966; lowest measured, 137.4 ft (41.88 m) below land-surface datum, Oct. 14, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 1, 1979	132.7	Mar. 19, 1980	125.6				

BENTON COUNTY

460237119383001. Local number, 7/25-36N1.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), total depth 860 ft (262.1 m), uncased depth interval from 105 to 185 ft (32.0 to 56.4 m).
DATUM.--Altitude of land-surface datum is 730 ft (222 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 101.4 ft (30.91 m) below land-surface datum, June 23, 1976; lowest measured, 133.50 ft (40.69 m) below land-surface datum, Nov. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	113.7	Mar. 10, 1980	103.9	July 15, 1980	105.8	Sept. 15, 1980	103.8
Dec. 18	110.8	May 13	106.3				

460237119383003. Local number, 7/25-36N3.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 860 ft (262.1 m), uncased depth interval from 720 to 755 ft (219.5 to 230.1 m).
DATUM.--Altitude of land-surface datum is 730 ft (222 m).
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 362.5 ft (110.49 m) below land-surface datum, Jan. 18, 1979; lowest measured, 380.70 ft (116.06 m) below land-surface datum, Sept. 15, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	376.8	Mar. 10, 1980	372.8	July 15, 1980	377.0	Sept. 15, 1980	380.7
Dec. 18	374.1	May 13	384.3				

460237119383004. Local number, 7/25-36N4.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (350 m), total depth 860 ft (262.1 m), uncased depth interval from 770 to 860 ft (234.7 to 262.1 m).
DATUM.--Altitude of land-surface datum is 730 ft (222 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 361.9 ft (110.31 m) below land-surface datum, Jan. 18, 1979, lowest measured, 384.7 ft (117.29 m) below land-surface datum, May 13, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	376.2	Mar. 10, 1980	372.0	July 15, 1980	380.7	Sept. 15, 1980	379.9
Dec. 18	373.2	May 13	384.7				

461226119220301. Local number, 8/28-6M1.
LOCATION.--Lat 46°12'26", long 119°22'03", Hydrologic Unit 17030003.
Owner: Dr. R. M. Debit.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm), depth 265 ft (80.8 m).
DATUM.--Altitude of land-surface datum 677 ft (206.3 m).
PERIOD OF RECORD.--December 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 122.0 ft (37.20 m) below land-surface datum Dec. 18, 1979; lowest measured, 146.8 ft (44.74 m) below land-surface datum, June 1, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 18, 1979	122.0B	Mar. 13, 1980	125.5B				

B Well recently pumped.

CHELAN COUNTY

473110120282001. Local number, 23/19-4E2.
LOCATION.--Lat 47°31'10", long 120°28'20", Hydrologic Unit 17020011, at Cashmere.
Owner: City of Cashmere.
AQUIFER.--Alluvial sand and gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug public-supply water-table well, diameter 6 ft (1.8 m), depth 24 ft (7.3 m), lined with concrete.
DATUM.--Altitude of land-surface datum about 784 ft (239.0 m).
PERIOD OF RECORD.--June 1945 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.04 ft (3.36 m) below land-surface datum, Feb. 1, 1972; lowest measured, 21.70 ft (6.61 m) below land-surface datum, Sept. 4, 1967.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1979	19.44	Feb. 13, 1980	16.82	June 11, 1980	17.25	Aug. 20, 1980	18.90
Dec. 23	16.50	Apr. 15	15.36				

DOUGLAS COUNTY

472648119525001. Local number, 23/23-36G1.
LOCATION.--Lat 47°26'48", long 119°52'50", Hydrologic Unit 17020012.
Owner: Palisades Irrigation District.
AQUIFER.--Glacial gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug irrigation, water-table well, diameter 40 to 72 in (1,000 to 1,800 mm), depth 154 ft (46.9 m) lined with concrete to 152 ft (46.3 m).
DATUM.--Altitude of land-surface datum about 1,030 ft (314 m).
PERIOD OF RECORD.--April 1943, April 1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.15 ft (40.28 m) below land-surface datum, Apr. 29, 1959; lowest measured, 146.79 ft (44.74 m) below land-surface datum, Oct. 12, 1970.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1979	145.25	Apr. 14, 1980	142.51				

474855119303901. Local number, 27/26-25D1.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 38 to 53 ft (11.6 to 16.2 m).
DATUM.--Altitude of land-surface datum is 2,215 ft (675.1 m).
REMARKS.--Water level measured in casing.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.36 ft (4.68 m) below land-surface datum, May 24, 1974; lowest measured, 22.95 ft (7.00 m) below land-surface datum, Oct. 4, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 1, 1979	21.9	Mar. 20, 1980	19.23	July 10, 1980	16.30	Sept. 9, 1980	16.35
Dec. 6	22.1	May 15	17.47				

474855119303902. Local number, 27/26-25D2.
LOCATION.--Lat 47°48'55", long 119°30'39", Hyerologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 70 to 152 ft (21.3 to 46.3 m), uncased.
DATUM.--Altitude of land-surface datum is 2,215 ft (675.1 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 2974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 85.63 ft (26.10 m) below land-surface datum, Sept. 9, 1980; lowest measured, 102.48 ft (31.24 m) below land-surface datum, Jan. 20, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 1, 1979	92.7	Mar. 20, 1980	89.30	July 10, 1980	86.01	Sept. 9, 1980	85.63
Dec. 6	91.9	May 15	87.14				

474855119303904. Local number, 27/26-25D4.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 490 to 610 ft (149.4 to 185.9 m), uncased, and perforated from 465 to 485 ft (141.7 to 147.8 m).
DATUM.--Altitude of land-surface datum is 2,215 ft (675.1 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 277.40 ft (84.55 m) below land-surface datum, Apr. 20, 1974; lowest measured, 324.95 ft (99.04 m) below land-surface datum, July 23, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 1, 1979	320.9	Mar. 20, 1980	320.7	July 10, 1980	320.7	Sept. 9, 1980	320.5
Dec. 6	320.6	May 15	320.6				

DOUGLAS COUNTY--Continued

474855119303905. Local number, 27/26-25D5.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 630 to 687 ft (192.0 to 209.4 m) uncased, and screened from 750 to 760 ft (228.6 to 231.6 m).
DATUM.--Altitude of land-surface datum is 2,215 ft (675.1 m).
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 320.2 ft (97.60 m) below land-surface datum, Aug. 21, 1978; lowest measured, 327.90 ft (99.94 m) below land-surface datum, Apr. 20, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 1, 1979	321.6	Mar. 20, 1980	321.3	July 10, 1980	321.0	Sept. 9, 1980	320.9
Dec. 6	321.2	May 16	321.3				

FRANKLIN COUNTY

461705118570001. Local number, 9/31-4N1.
LOCATION.--Lat 46°17'05", long 118°57'00", Hydrologic Unit 17060110, at Pasco.
Owner: James W. Rogers.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 343 ft (104.5 m).
DATUM.--Altitude of land-surface datum is 658 ft (200.6 m).
PERIOD OF RECORD.--April 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 266.60 ft (81.26 m) below land-surface datum, Mar. 19, 1975; lowest measured, 292.01 ft (89.00 m) below land-surface datum, Apr. 18, 1961.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 27, 1979	116.0	Mar. 27, 1980	111.0	Sept. 22, 1980	114.3		

460301119062001. Local number, 10/30-19E1 (formerly published as 19C1).
LOCATION.--46°20'13", long 119°06'34", Hydrologic Unit 17020016.
Owner: Andrus and Roberts Produce Company.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled industrial water-table well, diameter 6 in (150 mm), depth 395 ft (120.4 m).
DATUM.--Altitude of land-surface datum is 503 ft (153.3 m).
PERIOD OF RECORD.--April 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 82.1 ft (25.02 m) below land-surface datum, Sept. 28, 1977; lowest measured, 141.73 ft (43.20 m) below land-surface datum, Apr. 28, 1960.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 27, 1979	95.7	Mar. 27, 1980	94.7	July 30, 1980	99.3	Sept. 23, 1980	108.2
Jan. 28, 1980	95.0	June 2	94.2				

462343119092802. Local number, 11/29-34J2.
LOCATION.--Lat 46°23'43", long 119°09'28", Hydrologic Unit 17020016.
Owner: Bob Ransome.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm), depth 211 ft (64.3 m), cased to 211 ft (64.3 m).
DATUM.--Altitude of land-surface datum is 692 ft (210.9 m).
PERIOD OF RECORD.--June 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 118.5 ft (36.13 m) below land-surface datu, July 30, 1980; lowest measured, 187.0 ft (57.00 m) below land-surface datum, June 1, 1976.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 27, 1979	135.8B	Mar. 27, 1980	132.4B	July 30, 1980	118.5B	Sept. 23, 1980	125.2B
Jan. 28, 1980	134.9B	June 2	138.3B				

462830119043301. Local number, 11/30-5B1.
LOCATION.--lat 46°28'30", long 119°04'33", Hydrologic Unit 17020016.
Owner: Fred Holmes Community.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 8 in (200 mm), depth 110 ft (33.5 m), cased to 29 ft (8.8 m).
DATUM.--Altitude of land-surface datum is 753 ft (229.5 m).
PERIOD OF RECORD.--January 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.2 ft (9.51 m) below land-surface datum, Sept. 29, 1972; lowest measured, 61.05 ft (18.61 m) below land-surface datum, Apr. 15, 1958.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 27, 1979	36.45A	Mar. 27, 1980	42.7A	July 30, 1980	44.1A	Sept. 23, 1980	42.3A
Jan. 28, 1980	40.70A	June 2	33.9A				

A Well being pumped. B Well recently pumped.

FRANKLIN COUNTY--Continued

463339119125601. Local number, 12/29-5D1.
LOCATION.--Lat 46°33'39", long 119°12'56", Hydrologic Unit 17020016.
Owner: James Reynolds.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 181 ft (55.2 m), cased to 157 ft (47.9 m).
DATUM.--Altitude of land-surface datum is 610 ft (186 m).
PERIOD OF RECORD.--January 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 113.00 ft (34.442 m) below land-surface datum, Dec. 15, 1959; lowest measured, 147.1 ft (44.84 m) below land-surface datum, Sept. 29, 1976.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 27, 1979	116.8B	Mar. 27, 1980	115.4B	July 29, 1980	129.1A	Sept. 23, 1980	122.3B
Jan. 28, 1980	116.6B	June 2	115.6B				

463231119001601. Local number, 12/30-12H1.
LOCATION.--Lat 46°32'31", long 119°00'16", Hydrologic Unit 17020016, at Eltopia.
Owner: Lea Hailey.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock water-table well, diameter 6 in (150 mm), depth 121 ft (36.9 m), cased to 120 ft (36.6 m).
DATUM.--Altitude of land-surface datum is 676 ft (206.0 m).
PERIOD OF RECORD.--October 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 92.3 ft (28.13 m) below land-surface datum, Oct. 2, 1970; lowest measured, 108.69 ft (33.13 m) below land-surface datum, Apr. 16, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 28, 1979	100.8	Mar. 28, 1980	107.8A	July 29, 1980	102.4A	Sept. 23, 1980	106.1A
Jan. 31, 1980	103.8	June 2	102.60B				

463641119001001. Local number, 13/30-13M1.
LOCATION.--Lat 46°36'41", long 119°00'10", Hydrologic Unit 17020016, at Mesa.
Owner: P. H. Taylor.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic and stock water-table well, diameter 6 in (150 mm), depth 186 ft (56.7 m), cased to 11 ft (3.4 m).
DATUM.--Altitude of land-surface datum is 956 ft (291.4 m).
PERIOD OF RECORD.--March 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.8 ft (32.86 m) below land-surface datum, Sept. 26, 1974; lowest measured, 141.72 ft (43.20 m) below land-surface datum, May 25, 1961.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 28, 1979	117.9B	Mar. 28, 1980	123.5	Aug. 20, 1980	108.5	Sept. 23, 1980	109.4
Jan. 28, 1980	126.00	June 2	117.2				

463440118473001. Local number, 13/32-27R1.
LOCATION.--Lat 46°34'40", long 118°47'30", Hydrologic Unit 17020016, at Connell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused wanter-table well, diameter 6 in (150 mm), depth 323 ft (98.5 m).
DATUM.--Altitude of land-surface datum is 1,155 ft (352.0 m).
PERIOD OF RECORD.--October 1950--52, August 1956, June 1958, April 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 177.2 ft (54.02 m) below land-surface datum, Mar. 28, 1980; lowest measured 281.47 ft (85.79 m) below land-surface datum, Oct. 6, 1950.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 28, 1979	185.8	Mar. 28, 1980	177.2	July 29, 1980	183.1	Sept. 23, 1980	187.4
Jan. 28, 1980	184.7	June 2	183.7				

464028119101601. Local number, 14/29-27B1.
LOCATION.--Lat 46°40'28", long 119°10'16", Hydrologic Unit 17020016.
Owner: U.S. Bureau of Reclamation.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 8 in (200 mm), depth 498 ft (151.8 m), cased to 435 ft (132.6 m).
DATUM.--Altitude of land-surface datum is 947 ft (288.6 m).
PERIOD OF RECORD.--December 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 67.6 ft (20.61 m) below land-surface datum, Jan. 28, 1980; lowest measured, 235.79 ft (71.87 m) below land surface-datum, Mar. 24, 1960.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 27, 1979	67.9B	Mar. 27, 1980	68.7B	July 29, 1980	131.5A	Sept. 23, 1980	156.5B
Jan. 28, 1980	67.6B	June 2	114.0A				

A Well being pumped. B Well recently pumped.

FRANKLIN COUNTY--Continued

463950118564001. Local number, 14/31-29R1.
LOCATION.--Lat 46°39'50", long 118°56'40", Hydrologic Unit 17020016.
Owner: Keith Herrman.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 315 ft (96.0 m), cased to 104 ft (31.7 m).
DATUM.--Altitude of land-surface datum is 1,118 ft (340.8 m).
PERIOD OF RECORD.--April 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 176.7 ft (53.86 m) below land-surface datum, Oct. 2, 1975; lowest measured, 232.80 ft (70.96 m) below land-surface datum, Apr. 26, 1961.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 28, 1979	182.2B	Mar. 28, 1980	177.2B	July 29, 1980	181.4B	Sept. 23, 1980	188.3B
Jan. 28, 1980	182.9B	June 2	183.6B				

463900118470001. Local number, 14/32-33Q1.
LOCATION.--Lat 46°39'00", long 118°47'00", Hydrologic Unit 17020016, near Connell.
Owner: J. W. Stine.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 281 ft (85.6 m), cased to 51 ft (15.5 m).
DATUM.--Altitude of land-surface datum is 796 ft (242.6 m).
PERIOD OF RECORD.--June 1952, October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 97.0 ft (29.57 m) below land-surface datum, June 11, 1952; lowest measured, 132.5 ft (40.40 m) below land-surface datum, Sept. 23, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 27, 1980	128.4	Sept. 23, 1980	132.5				

GRANT COUNTY

465539119332101. Local number, 17/26-34D1.
LOCATION.--Lat 46°55'39", long 119°33'21", Hydrologic Unit 17020015.
Owner: J. P. Needham.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 240 ft (73.2 m), cased to 60 ft (18.3 m).
DATUM.--Altitude of land-surface datum is 1,085 ft (330.7 m).
PERIOD OF RECORD.--September 1940, March 1956 to December 1958, March 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.06 ft (0.02 m) below land-surface datum, Mar. 3, 1971; lowest measured, 177.66 ft (54.15 m) below land-surface datum, Sept. 22, 1956.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	3.29	Feb. 6, 1980	3.38	May 2, 1980	3.45	Aug. 22, 1980	3.19
Dec. 13	3.19	Mar. 5	3.26	June 26	3.38		

465851119151501. Local number, 17/28-11F1.
LOCATION.--lat 46°58'51", long 119°16'16", Hydrologic Unit 17020015.
Owner: U.S. Government, U.S. Bureau of Reclamation.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian test well, diameter 2 in (50 mm), depth 168 ft (51.2 m), cased to 8 ft (2.4 m).
DATUM.--Land-surface datum is 1,051.6 ft (320.53 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 79.96 ft (24.37 m) below land-surface datum, Mar. 5, 1980; lowest measured, 141.01 ft (42.98 m) below land-surface datum, Jan. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	107.4	Mar. 5, 1980	79.96				

465903119070901. Local number, 17/29-12C1.
LOCATION.--Lat 46°59'03", long 119°07'09", Hydrologic Unit 17020015.
Owner: Rogers Hayes.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 315 ft (96.0 m).
DATUM.--Altitude of land-surface datum is 1,212 ft (369.4 m).
PERIOD OF RECORD.--September 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 33.35 ft (10.16 m) below land-surface datum, Oct. 17, 1967; lowest measured, 220.13 ft (67.10 m) below land-surface datum, Aug. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	38.3	Feb. 6, 1980	46.45	May 2, 1980	51.65A	Aug. 22, 1980	42.72
Dec. 13	42.49	Mar. 5	48.68	June 26	48.21		

A Well being pumped.
B Well recently pumped.

GRANT COUNTY--Continued

465626119010601. Local number, 17/30-26C1.
LOCATION.--46°56'26", long 119°01'06", Hydrologic Unit 17020015.
Owner: Albert Widmer.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 400 ft (121.9 m).
DATUM.--Altitude of land-surface datum is 1,402 ft (427.3 m).
PERIOD OF RECORD.--August 1955, June 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 236.15 ft (71.979 m) below land-surface datum, Feb. 28, 1973; lowest measured, 292.03 ft (89.01 m) below land-surface datum, Oct. 3, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	255.2	Feb. 7, 1980	258.28	May 2, 1980	267.75	Aug. 22, 1980	253.91
Dec. 13	254.8	Mar. 5	263.25	June 26	255.48		

470352119433201. Local number, 18/25-8M1.
LOCATION.--Lat 47°03'52", long 119°43'32", Hydrologic Unit 17020015.
Owner: Metropolitan Life.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 36 in (900 mm), depth 112 ft (34.1 m), lined with concrete to 112 ft (34.1 m).
DATUM.--Altitude of land-surface datum is 1,179 ft (359.4 m).
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.83 ft (0.863 m) below land-surface datum, June 21, 1960; lowest measured, 98.76 ft (30.10 m) below land-surface datum, Apr. 27, 1953.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	33.14	Feb. 6, 1980	31.33	May 2, 1979	30.46	Aug. 22, 1980	31.13C
Dec. 13	31.60	Mar. 5	31.17	June 26	32.70C		

470339119433001. Local number, 18/25-8N1.
LOCATION.--Lat 47°03'39", long 119°43'30", Hydrologic Unit 17020015.
Owner: Metropolitan Life.
AQUIFER.--Sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled stock supply water-table well, diameter 6 in (150 mm), depth 323 ft (98.5 m).
DATUM.--Altitude of land-surface datum is 1,173 ft (357.5 m).
PERIOD OF RECORD.--May 1942, September 1949 to November 1960, October 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.74 ft (7.24 m) below land-surface datum, Jan. 20, 1970; lowest measured, 97.42 ft (29.69 m) below land-surface datum, June 23, 1953.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	30.86	Feb. 6, 1980	28.92	May 2, 1980	27.55	Aug. 22, 1980	26.63C
Dec. 13	29.11	Mar. 5	28.38	June 26	28.15C		

470148119412601. Local number, 18/25-28B1.
LOCATION.--Lat 47°01'48", long 119°41'26", Hydrologic Unit 17020015.
Owner: Farm Management Service.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, depth 735 ft (224.0 m).
DATUM.--Altitude of land-surface datum is 1,151 ft (350.8 m).
PERIOD OF RECORD.--June 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.13 ft (14.67 m) below land-surface datum, Feb. 11, 1976; lowest measured, 225.8 ft (68.82 m) below land-surface datum, Sept. 9, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	113.8A	Feb. 6, 1980	64.1	May 1, 1980	74.77C	Aug. 22, 1980	234A
Dec. 13	70.4	Mar. 5	52.98	June 26	205A		

470030119390301. Local number, 18/25-35K1.
LOCATION.--Lat 47°00'30", long 119°39'03", Hydrologic Unit 17020015.
Owner: Farm Management Service.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, depth 960 ft (292.6 m).
DATUM.--Altitude of land-surface datum is 1,140 ft (347.5 m).
PERIOD OF RECORD.--May 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 56.4 ft (17.19 m) below land-surface datum, Feb. 15, 1977; lowest measured, 236 ft (71.9 m) below land-surface datum, Oct. 13, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	237	May 2, 1980	317A	Aug. 22, 1980	294A		
Mar. 5, 1980	313	June 26	294A				

A Well pumping.
C Nearby well being pumped.

GRANT COUNTY--Continued

470445119160301. Local number, 18/28-2L1.
LOCATION.--Lat 47°04'45", long 119°16'03", Hydrologic Unit 17020015.
Owner: Dune Lake Company.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 184 ft (56.1 m).
DATUM.--Altitude of land-surface datum is 1,128 ft (343.8 m).
PERIOD OF RECORD.--October 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.45 ft (0.14 m) below land-surface datum, Sept. 4, 1970; lowest measured, 74.25 ft (22.63 m) below land-surface datum, May 14, 1951.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	4.04	Mar. 4, 1980	3.88				

470233119115601. Local number, 18/29-20B1.
LOCATION.--Lat 47°02'33", long 119°11'56", Hydrologic Unit 17020015.
Owner: R. Debeaument.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock-supply water-table well, diameter 6 in (150 mm), depth 219 ft (66.8 m).
DATUM.--Altitude of land-surface datum is 1,179 ft (359.4 m).
PERIOD OF RECORD.--October 1949 to February 1950, August 1954 to October 1964, March 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.71 ft (1.436 m) below land-surface datum, Apr. 24, 1961; lowest measured, 210.79 ft (64.249 m) below land-surface datum, Sept. 17, 1949.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	46.6	Feb. 6, 1980	52.48	May 2, 1980	55.98	Aug. 22, 1980	52.18
Dec. 13	48.66	Mar. 5	53.18	June 26	55.18		

470417119043401. Local number, 18/30-8C1.
LOCATION.--Lat 47°04'17", long 119°04'34", Hydrologic Unit 17020015.
Owner: Wayner Goff.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 228 ft (69.5 m).
DATUM.--Altitude of land-surface datum is 1,225 ft (373.4 m).
PERIOD OF RECORD.--May 1951 to October 1951, October 1954 to April 1956, February 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.25 ft (15.93 m) below land-surface datum, Sept. 16, 1969; lowest measured, 181.26 ft (55.25 m) below land-surface datum, Aug. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	58.1	May 2, 1980	73.69	June 26, 1980	68.60	Aug. 22, 1980	61.6

470022119023801. Local number, 18/30-34M1.
LOCATION.--Lat 47°00'22", long 119°02'38", Hydrologic Unit 17020015.
Owner: H. Yamamoto.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diamater 6 in (250 mm), depth 147 ft (44.8 m).
DATUM.--Altitude of land-surface datum is 1,174 ft (357.8 m).
PERIOD OF RECORD.--February 1943 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.10 ft (10.698 m) below land-surface datum Feb. 28, 1973; lowest measured, 108.70 ft (33.13 m) below land-surface datum, Oct. 29, 1947.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1979	44.3	Feb. 7, 1980	47.53	May 2, 1980	46.75	Aug. 22, 1980	43.15
Dec. 13	46.27	Mar. 5	47.76	June 26	45.02		

470627119394701. Local number, 19/25-26N1.
LOCATION.--Lat 47°06'27", long 119°39'47", Hydrologic Unit 17020015.
Owner: Rudy Stetner.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 110 ft (33.5 m).
DATUM.--Altitude of land-surface datum is 1,185 ft (361.2 m).
PERIOD OF RECORD.--September 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.09 ft (14.963 m) below land-surface datum, Mar. 5, 1971; lowest measured, 106.63 ft (32.501 m) below land-surface datum, Mar. 3, 1951.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	64.33	Feb. 6, 1980	57.72	May 1, 1980	55.49	Aug. 22, 1980	63.63
Dec. 13	61.30	Mar. 5	56.50	June 26	59.32		

GRANT COUNTY--Continued

470631119420501. Local number, 19/25-28M1.
LOCATION.--Lat 47°06'31", long 119°42'05", Hydrologic Unit 17020015.
Owner: Edwin A. Wyatt.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 idn (200 mm), depth 124 ft (37.8 m).
DATUM.--Altitude of land-surface datum is 1,194 ft (363.9 m)
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.00 ft (11.28 m) below land-surface datum, Apr. 19, 1972; lowest measured, 114.47 ft (34.89 m) below land-surface datum, Apr. 7, 1951.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	43.1	Feb. 6, 1980	40.54	May 1, 1980	49.64	Aug. 22, 1980	44.10
Dec. 13	41.86	Mar. 5	51.28C	June 26	46.29A		

470759119344501. Local number, 19/26-20A1.
LOCATION.--Lat 47°07'59", long 119°34'45", Hydrologic Unit 17020015.
Owner: Joe Tainaka.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 150 ft (45.7 m), cased to 100 ft (30.5 m).
DATUM.--Altitude of land-surface datum is 1,224 ft (373.1 m).
PERIOD OF RECORD.--March 1939-August 1940, April 1942, September 1949 to May 1980 (discontinued).
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 61.14 ft (18.635 m) below land-surface datum, Mar. 8, 1979; lowest measured, 151.45 ft (46.16 m) below land-surface datum, Apr. 11, 1952.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	64.4	Dec. 13, 1979	62.75	Feb. 6, 1980	62.78	Mar. 5, 1980	62.13

470608119331502. Local number, 19/26-34D1.
LOCATION.--Lat 47°06'07", long 119°33'15", Hydrologic Unit 17020015.
Owner: Washington State Highway.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-able well, diameter 6 in (150 mm), depth 96 ft (29.3 m), cased to 65 ft (19.8 m).
DATUM.--Altitude of land-surface datum is 1,168 ft (356.0 m).
PERIOD OF RECORD.--March 1939-July 1963, November 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.83 ft (7.26 m) below land-surface datum; June 26, 1980; lowest measured, 101.53 ft (30.946 m) below land-surface datum, Sept. 16, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	24.88	Feb. 6,1980	24.44	May 1, 1980	24.50	Aug. 22, 1980	24.91
Dec. 13	24.59	Mar. 5	24.36	June 21	23.83		

470805119263801. Local number, 19/27-16N1.
LOCATION.--lat 47°08'05", long 119°26'38", Hydrologic Unit 17020015.
Owner: Wes Avara.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 84 in (2,100 mm), depth 74 ft (22.6 m), lined with concrete to 65 ft (19.8 m).
DATUM.--Altitude of land-surface datum is 1,094 ft (333.5 m).
PERIOD OF RECORD.--December 1942 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.37 ft (14.44 m) below land-surface datum, Mar. 14, 1974; lowest measured, 81.77 ft (24.92 m) below land-surface datum, Oct. 28, 1947.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	49.02	Mar. 4, 1980	47.75				

470652119230301. Local number, 19/27-26A1.
LOCATION.--Lat 47°06'52", long 119°23'03", Hydrologic Unit 17020015.
Owner: C. M. Grant.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug domestic and irrigation water-table well, diameter 48 to 6 in (1,200 to 150 mm), depth 52 ft (15.8 m).
DATUM.--Altitude of land-surface datum is 1,073 ft (327.1 m).
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.68 ft (7.52 m) below land-surface datum, Mar. 14, 1974; lowest measured, 41.86 ft (12.76 m) below land-surface datum, July 22, 1953.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	31.88A	Mar. 4, 1980	31.05A				

A Well being pumped.
C Nearby well being pumped.

GRANT COUNTY--Continued

470658119261401. Local number, 19/27-28B1.

LOCATION.--Lat 47°06'58", long 119°26'14", Hydrologic Unit 17020015.

Owner: John Quick.

AQUIFER.--Gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 90 ft (27.4 m).

DATUM.--Altitude of land-surface datum is 1,101 ft (335.6 m).

PERIOD OF RECORD.--December 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 58.7 ft (17.89m) below land-surface datum, Mar. 4, 1980; lowest measured, 63.84 ft (19.458 m) below land-surface datum, Mar. 8, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	62.3	Mar. 4, 1980	58.7				

471020119210701. Local number, 19/28-6C1.

LOCATION.--Lat 47°10'20", long 119°21'07", Hydrologic Unit 17020015.

Owner: Ray Turpinseed.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 48 in (1,200 mm), depth 37 ft (11.3 m), lined with concrete to 37 ft (11.3 m).

DATUM.--Altitude of land-surface datum is 1,078 ft (328.6 m).

PERIOD OF RECORD.--Highest water level measured, 29.10 ft (8.870 m) below land-surface datum, June 24, 1971; lowest measured, 40.83 ft (12.44 m) below land-surface datum, Feb. 7, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	32.84	Feb. 7, 1980	40.83	May 1, 1980	34.7A	Aug. 22, 1980	33.5A
Dec. 12	32.71	Mar. 4	37.50	June 27	33.6		

470913119192401. Local number, 19/28-8H2.

LOCATION.--Lat 47°09'13", long 119°19'24", Hydrologic Unit 17020015.

Owner: Mr. Baker.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug irrigation and domestic water-table well, diameter 10 in (250 mm), depth 48 ft (14.6 m).

DATUM.--Altitude of land-surface datum is 1,090 ft (332.2 m).

PERIOD OF RECORD.--November 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.43 ft (12.02 m) below land-surface datum, Aug. 3, 1977, lowest measured, 48.35 ft (14.74 m) below land-surface datum, Dec. 13, 1960.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	42.93	Feb. 7, 1980	44.06	May 5, 1980	43.40	Aug. 25, 1980	43.2A
Dec. 12	42.8	Mar. 5	45.30	June 27	42.95A		

470935119174201. Local number, 19/28-10D1.

LOCATION.--Lat 47°09'35", long 119°17'42", Hydrologic Unit 17020015.

Owner: Harold Mathenia.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug and drilled domestic water-table well, diameter 40 to 6 in (1,000 to 150 mm), depth 102 ft (31.1 m).

DATUM.--Altitude of land-surface datum is 1,114 ft (339.5 m).

PERIOD OF RECORD.--November 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.1 ft (14.36 m) below land-surface datum, Sept. 12, 1967; lowest measured, 62.08 ft (18.92 m) below land-surface datum, Aug. 30, 1951.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	49.4	Mar. 5, 1980	52.2				

A Well being pumped.
C Nearby well pumping.

GRANT COUNTY--Continued

470621119144401. Local number, 19/28-25L1.

LOCATION.--Lat 47°06'21", long 119°14'44", Hydrologic Unit 17020015, at Moses Lake.

Owner: Paul Landis.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 492 ft (150.0 m).

DATUM.--Altitude of land-surface datum is 1,192 ft (363.3 m).

PERIOD OF RECORD.--October 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.3 ft (12.28 m) below land-surface datum, Sept. 5, 1974; lowest measured, 185.88 ft (56.656 m) below land-surface datum, Aug. 29, 1951.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 28, 1979	41.52	Feb. 7, 1980	47.51	May 2, 1980	45.01	Aug. 21, 1980	42.91
Dec. 13	43.03	Mar. 4	44.59	June 26	44.51		

470811119074301. Local number, 19/29-14J1.

LOCATION.--Lat 47°08'11", long 119°07'43", Hydrologic Unit 17020015.

Owner: Ron Hanson

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 12 in (300 mm), depth 368 ft (112.2 m).

DATUM.--Altitude of land-surface datum is 1,357 ft (413.6 m).

PERIOD OF RECORD.--December 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.21 ft (40.30 m) below land-surface datum, Dec. 30, 1964; lowest measured, 234.03 ft (71.33 m) below land-surface datum, Oct. 27, 1951.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	159.4	Feb. 7, 1980	147.20	May 2, 1980	150.78	Aug. 20, 1980	160.97
Dec. 14	160.1	Mar. 6	145.56	June 27	157.68		

470729119101501. Local number, 19/29-22E1.

LOCATION.--Lat 47°07'29", long 119°10'15", Hydrologic Unit 17020015.

Owner: Carnation Company.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 14 in (350 mm), depth 560 ft (170.7 m).

DATUM.--Altitude of land-surface datum is 1,293 ft (394.1 m).

PERIOD OF RECORD.--June 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48 ft (14.6 m) below land-surface datum, Oct. 18, 1978 and Oct. 18, 1979; lowest measured, 87.3 ft (26.61 m) below land-surface datum, Mar. 15, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	48	Mar. 6, 1980	76				

470626119101801. Local number, 19/29-28J1.

LOCATION.--Lat 47°06'26", long 119°10'18", Hydrologic Unit 17020015.

Owner: J. E. Anderson.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, depth 800 ft (243.8 m).

DATUM.--Altitude of land-surface datum is 1,235 ft (376.4 m).

PERIOD OF RECORD.--June 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.8 ft (10.0 m) below land-surface datum, Oct. 14, 1977; lowest measured, 49.3 ft (15.03 m).

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	49.3	Mar. 6, 1980	47.0				

470952118592701. Local number, 19/30-1L1.

LOCATION.--Lat 47°09'52", long 118°59'27", Hydrologic Unit 17020015, near Ruff.

Owner: A. L. Ramm.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-level well, diameter 12 in (300 mm), depth 523 ft (159.4 m), cased to 37 ft (11.3 m).

DATUM.--Altitude of land-surface datum is 1,420 ft (433 m).

PERIOD OF RECORD.--January 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 257.0 ft (78.33 m) below land-surface datum, Apr. 2, 1976; lowest measured, 405 ft (123.4 m) below land-surface datum, Oct. 11, 1978, Oct. 18, 1979, and Mar. 7, June 27 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	405	Mar. 7, 1980	405	June 27, 1980	405A	Aug. 20, 1980	396
Feb. 7, 1980	396	May 2	427A				

A Well being pumped.

GRANT COUNTY--Continued

471955119324701. Local number, 21/26-10L2.
LOCATION.--Lat 47°19'55", long 119°32'47", Hydrologic Unit 17020015.
Owner: D. L. Nelson
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 122 ft (37.2 m), cased to 100 ft (30.5 m).
DATUM.--Altitude of land-surface datum is 1,260 ft (384 m).
PERIOD OF RECORD.--September 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.87 ft (6.06 m) below land-surface datum, Aug. 28, 1975; lowest measured, 68.27 ft (20.81 m) below land-surface datum, Dec. 7, 1949.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 16, 1979 Dec. 11	21.17 21.14	Feb. 4, 1980 Mar. 3	22.39 22.47	Apr. 30, 1980 June 25	23.58 23.99	Aug. 19, 1980	19.97

472009119300101. Local number, 21/26-12F1.
LOCATION.--Lat 47°20'09", long 119°30'01", Hydrologic Unit 17020015, near Ephrata.
Owner: Grant County.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 183 ft (55.8 m).
DATUM.--Altitude of land-surface datum is 1,259 ft (383.7 m).
PERIOD OF RECORD.--December 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.85 ft (24.338 m) below land-surface datum, Apr. 13, 1978; lowest measured, 117.77 ft (35.90 m) below land-surface datum, Mar. 13, 1950.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 16, 1979 Dec. 11	83.4 83.2	Feb. 4, 1980 Mar. 3	83.36 83.5	Apr. 30, 1980 June 24	82.85 87.74	Aug. 19, 1980	92.45

473644119161101. Local number, 24/28-2C1.
LOCATION.--Lat 47°36'44", long 119°16'11", Hydrologic Unit 17020014, near Coulee City.
Owner: Vern Adams.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 400 ft (121.9 m).
DATUM.--Altitude of land-surface datum is 1,661 ft (506.3 m).
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.7 ft (16.06 m) below land-surface datum, Feb. 29, 1968; lowest measured, 123.5 ft (36.64 m) below land-surface datum, Aug. 23, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1979 Dec. 10	102.3 97.5	Feb. 11, 1980 Mar. 7	95.0 74.6	Apr. 29, 1980 June 24	82.5 94.4	Aug. 20, 1980	82.6

473505119085701. Local number, 24/29-10R1.
LOCATION.--Lat 47°35'05", long 119°08'57", Hydrologic Unit 17020014.
Owner: Harold Isaak.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 7 in (175 mm), depth 120 ft (36.6 m).
DATUM.--Altitude of land-surface datum is 1,771 ft (539.8 m).
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 78.0 ft (23.77 m) below land-surface datum, Apr. 29, 1980; lowest measured, 93.84 ft (28.60 m) below land-surface datum, Apr. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 16, 1979 Dec. 10	84.4 84.3	Mar. 7, 1980 Apr. 29	86.1 78.0	June 24, 1980	79.5	Aug. 20, 1980	80.4

KITTITAS COUNTY

470052120290001. Local number, 18/19-32B1.
LOCATION.--Lat 47°00'52", long 120°29'00", Hydrologic Unit 17030001, near Ellensburg.
Owner: Department of Game.
AQUIFER.--Sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 10 in (250 mm), depth 267 ft (81.4 m), cased to 100 ft (30.5 m).
DATUM.--Altitude of land-surface datum is 1,723 ft (525.2 m).
PERIOD OF RECORD.--June 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.0 ft (5.79 m) below land-surface datum, Feb. 29, 1978; lowest measured, 40.01 ft (12.20 m) below land-surface datum, June 5, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 1, 1979	36.8A	Feb. 5, 1980	32.8				

KLICKITAT COUNTY

454325120554301. Local number, 3/15-28A1.
LOCATION.--Lat 45°43'25", long 120°55'43", Hydrologic Unit 17070106.
Owner: Frank Garner.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 85 ft (25.9 m).
DATUM.--Altitude of land-surface datum is 1,600 ft (488 m).
PERIOD OF RECORD.--August 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.86 ft (2.09 m) below land-surface datum, Apr. 8, 1965; lowest measured, 18.7 ft (5.70 m) below land-surface datum, Oct. 4, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	18.7	Mar. 12, 1980	12.2				

455008120561301. Local number, 4/15-16F1.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Altitude of land-surface datum is 1,590 ft (485 m).
REMARKS.--Monitored depth interval from 40 to 210 ft (12.2 to 64.0 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.1 ft (3.38 m) below land-surface datum, Apr. 12, 1976; lowest measured, 25.5 ft (7.77 m) below land-surface datum, Oct. 4, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	25.5	Mar. 12, 1980	19.5				

455008120561302. Local number, 4/15-16F2.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 170701016, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Altitude of land-surface datum is 1,590 ft (485 m).
REMARKS.--Monitored depth interval from 215 to 330 ft (65.5 to 100.6 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 11.0 ft (3.35 m) below land-surface datum, Apr. 12, 1976; lowest measured, 25.5 ft (7.77 m) below land-surface datum, Oct. 4, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	25.5	Mar. 12, 1980	19.5				

455008120561313. Local number, 4/15-16F3.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Altitude of land-surface datum is 1,590 ft (485 m).
REMARKS.--Monitored depth interval from 335 to 440 ft (102.1 to 134.1 m), water-level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.6 ft (3.54 m) below land-surface datum, Apr. 12, 1976; lowest measured, 25.9 ft (7.86 m) below land-surface datum, Oct. 4, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	25.9	Mar. 12, 1980	19.8				

A Well being pumped.

KLICKITAT COUNTY--Continued

455008120561304. Local number, 4/15-16F4.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Altitude of land-surface datum is 1,590 ft (485 m).
REMARKS.--Monitored depth interval from 500 to 580 ft (152.4 to 176.8 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 196.7 ft (59.97 m) below land-surface datum, Mar. 12, 1980, lowest measured, 223.60 ft (68.153 m) below land-surface datum, Apr. 30, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	201.7	Mar. 12, 1980	196.7				

454715120434901. Local number, 4/17-31L1.
LOCATION.--Lat 45°47'15", long 120°43'49", Hydrologic Unit 17070106.
Owner: T. V. Wilkins.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (400 mm), depth 139 ft (42.4 m).
DATUM.--Altitude of land-surface datum is 1,883 ft (573.9 m).
PERIOD OF RECORD.--August 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.99 ft (0.30 m) below land-surface datum, Feb. 16, 1966; lowest measured, 8.01 ft (2.44 m) below land-surface datum, Sept. 9, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	6.35	Mar. 12, 1980	1.68				

455948120175201, Local number, 6/20-22D1.
LOCATION.--Lat 45°59'48", long 120°17'52", Hydrologic Unit 17070101, near Bickleton.
Owner: L. Whitmore.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm), depth 44 ft (13.4 m).
DATUM.--Altitude of land-surface datum is 3,005 ft (915.9 m).
PERIOD OF RECORD.--May 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.30 ft (1.01 m) below land-surface datum, Apr. 9, 1971; lowest measured, 31.27 ft (9.53 m) below land-surface datum, Aug. 25, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	29.3	Mar. 12, 1980	25.3B				

LINCOLN COUNTY

471937118544402. Local number, 21/31-10M2.
LOCATION.--47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).
DATUM.--Altitude of land-surface datum is 1,610 ft (491 m).
REMARKS.--Monitored depth interval from 98 to 735 ft (29.9 to 224.0 m), water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 230.25 ft (70.18 m) below land-surface datum, Jan. 8, 1973; lowest measured, 286.8 ft (87.42 m) below land-surface datum, June 25, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	282.7	Feb. 4, 1980	279.4	Apr. 29, 1980	277.2	Aug. 19, 1980	282.8
Dec. 10	280.2	Mar. 7	277.5	June 23	284.5		

471937118544403. Local number, 21/31-10M3.
LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).
DATUM.--Altitude of land-surface datum is 1,610 ft (491 m).
REMARKS.--Monitored depth interval from 742 to 1,480 ft (226.2 to 451.1 m), water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 231.32 ft (70.51 m) below land-surface datum, Jan. 8, 1973; lowest measured, 328.0 ft (99.97 m) below land-surface datum, June 23, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	327.5	Feb. 4, 1980	309.8	Apr. 29, 1980	309.8	Aug. 19, 1980	324.7
Dec. 10	315.9	Mar. 7	306.4	June 23	328.0		

B Well recently pumped.

LINCOLN COUNTY--Continued

471937118544404. Local number, 21/31-10M4.
LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).
DATUM.--Altitude of land-surface datum is 1,610 ft (491 m).
REMARKS.--Monitored depth interval from 1,488 to 2,300 ft (453.5 to 701.0 m), water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 224.56 ft (68.45 m) below land-surface datum, May 24, 1976; lowest measured, 239.5 ft (73.00 m), Oct. 17, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	239.5	Feb. 4, 1980	237.8	Apr. 29, 1980	236.2	Aug. 19, 1980	232.8
Dec. 10	238.3	Mar. 7	236.6	June 23	235.6		

471622118572501. Local number, 21/31-32D1.
LOCATION.--Lat 47°16'22", long 118°57'25", Hydrologic Unit 17020015.
Owner: Fred Kissler.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm) from 0 to 285 ft (0 to 117.3 m), 8 in (200 mm) diameter from 385 to 708 ft (117.3 to 215.8 m), total depth 708 ft (215.8 m).
DATUM.--Altitude of land-surface datum is 1,669 ft (508.7 m).
PERIOD OF RECORD.--April 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 255.0 ft (77.7 m) below land-surface datum, Feb. 28, 1965; lowest measured, 454.2 ft (138.44 m) below land-surface datum, Oct. 11, 1978 and Oct. 17, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	454.2C	Mar. 7, 1980	332.2				

471915118362401. Local number, 21/33-12P1.
LOCATION.--Lat 47°19'15", long 118°36'24", Hydrologic Unit 17020013.
Owner: King Brothers.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 15 in (375 mm), depth 403 ft (122.8 m), cased to 48 ft (14.6 m).
DATUM.--Altitude of land-surface datum is 1,602 ft (488.3 m).
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.78 ft (3.90 m) below land-surface datum, Feb. 17, 1967; lowest measured, 50 ft (13.2 m) below land-surface datum, July 14, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1979	43.7	Mar. 10, 1980	25.05				

472513118053801. Local number, 22/37-12C1.
LOCATION.--Lat 47°25'13", long 118°05'38", Hydrologic Unit 17020013.
Owner: Wesley Bly.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 380 ft (115.8 m), cased to 40 ft (12.2 m).
DATUM.--Altitude of land-surface datum is 2,229 ft (679.4 m).
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.11 ft (18.93 m) below land-surface datum Jan. 26, 1971; lowest measured, 135.0 ft (41.15 m) below land-surface datum, Oct. 5, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1979	128.7	Mar. 19, 1980	118.55				

472839118481901. Local number, 23/32-20A1.
LOCATION.--Lat 47°28'39", long 118°48'19", Hydrologic Unit 17020013.
Owner: L. J. Bonney.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 710 ft (216.4 m), cased to 644 ft (196.3 m).
DATUM.--Altitude of land-surface datum is 1,855 ft (565.4 m).
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 173.55 ft (52.898 m) below land-surface datum, Mar. 14, 1967; lowest measured, 348 ft (106.1 m) below land-surface datum, Oct. 14, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1979	221.9	Mar. 18, 1980	310				

C Nearby well pumping.

LINCOLN COUNTY--Continued

472802118165401. Local number 23/36-21P1.
LOCATION.--Lat 47°28'02", long 118°16'54", Hydrologic Unit 17020013, near Harrington.
Owner: Harry Moeller.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 242 ft (73.8 m) cased to 17 ft (5.2 m).
DATUM.--Altitude of land-surface datum is 2,138 ft (651.7 m).
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.5 ft (14.78 m) below land-surface datum, Mar. 19, 1980; lowest measured, 92.9 ft (28.32 m) below land-surface datum, July 9, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	71.6	Mar. 19, 1980	48.5				

4734331185600301. Local number, 24/31-16E1.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Altitude of land-surface datum is 1,845 ft (562.4 m).
REMARKS.--Monitored depth interval from 60 to 316 ft (18.3 to 96.3 m), water level measured in 10 in (250 mm) diameter casing.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 175.20 ft (53.40 m) below land-surface datum, Sept. 10, 1975; lowest measured, 186.4 ft (56.81 m) below land-surface datum, Mar. 18, 1980

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 16, 1979	186.0	Mar. 18, 1980	186.4	June 24, 1980	183.6	Aug. 20, 1980	183.5
Dec. 11	186.0	Apr. 29	186.0				

473433118560302. Local number, 24/31-16E2.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Altitude of land-surface datum is 1,845 ft (562.4 m).
REMARKS.--Monitored depth interval from 424 to 456 ft (129.2 to 139.0 m), water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 345.65 ft (105.66 m) below land-surface datum, Jan. 31, 1977; lowest measured, 393.1 ft (119.82 m) below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 16, 1979	388.0	Mar. 18, 1980	389.4	June 24, 1980	380.3	Aug. 20, 1980	380.2
Dec. 11	391.1	Apr. 29	383.2				

473433118560303. Local number, 24/31-16E3.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Plioene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Altitude of land-surface datum is 1,845 ft (562.4 m).
REMARKS.--Monitored depth interval from 494 to 556 ft (150.6 to 169.5 m), water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 345.53 ft (105.318 m) below land-surface datum, Jan. 31, 1977; lowest measured, 393.6 ft (119.97 m) below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 16, 1979	387.9	Mar. 18, 1980	389.3	June 24, 1980	380.3	Aug. 20, 1980	380.2
Dec. 11	391.2	Apr. 29	382.8				

473433118560304. Local number, 24/31-16E4.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m) cased to 60 ft (18.3 m).
DATUM.--Altitude of land-surface datum is 1,845 ft (562.4 m).
REMARKS.--Monitored depth interval 650 to 698 ft (198.1 to 212.8 m), dwater level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 346.50 ft (105.613 m) below land-surface datum, Jan. 31, 1977; lowest measured, 393.5 ft (119.94 m) below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 16, 1979	387.8	Mar. 18, 1980	389.3	June 24, 1980	379.9	Aug. 20, 1980	380.1
Dec. 11	391.1	Apr. 29	387.9				

LINCOLN COUNTY--Continued

47344421181622101. Local number, 24/36-16A1.

LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 75 to 116 ft (22.9 to 35.4 m), water level measured in 10 in (250 mm) casing.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.52 ft (8.69 m) below land-surface datum, May 1, 1974; lowest measured, 46.10 ft (14.05 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	42.7	Feb. 5, 1980	43.0	Apr. 29, 1980	36.8	Aug. 19, 1980	38.2
Dec. 10	43.5	Mar. 19	37.0	June 23	37.1		

473442118162202. Local number, 24/36-16A2.

LOCATION.--47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 123 to 160 ft (37.5 to 48.8 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.38 ft (8.65 m) below land-surface datum, May 1, 1974; lowest measured, 46.22 ft (14.09 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	42.7	Feb. 5, 1980	43.0	Apr. 29, 1980	36.8	Aug. 19, 1980	38.1
Dec. 10	43.5	Mar. 19	39.1	June 23	37.2		

473442118162203. Local number, 24/36-16A3.

LOCATION.--47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 208 to 224 ft (63.4 to 68.3 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.24 ft (8.61 m) below land-surface datum, May 1, 1974; lowest measured, 46.25 ft (14.10 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	42.7	Feb. 5, 1980	43.0	Apr. 29, 1980	36.7	Aug. 19, 1980	38.1
Dec. 10	43.5	Mar. 19	37.0	June 23	37.0		

473442118162204. Local number, 24/36-16A4.

LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diamter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 242 to 261 ft (73.8 to 79.6 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.47 ft (8.37 m) below land-surface datum, May 1, 1974; lowest measured, 46.45 ft (14.16 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	42.9	Feb. 5, 1980	43.2	Apr. 29, 1980	37.1	Aug. 19, 1980	38.3
Dec. 10	43.6	Mar. 19	37.6	June 23	37.0		

473442118162205. Local number, 24/36-16A5.

LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.

Owner: State of Washington, Department of Ecology.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).

DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).

REMARKS.--Monitored depth interval from 315 to 365 ft (96.0 to 111.3 m), water level measured in piezometer.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.90 ft (8.50 m) below land-surface datum, May 1, 1974; lowest measured, 50.53 ft (15.40 m) below land-surface datum, Sept. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	47.9	Feb. 5, 1980	46.6	Apr. 29, 1980	41.9	Aug. 19, 1980	43.2
Dec. 10	47.0	Mar. 19	44.0	June 23	43.0		

LINCOLN COUNTY--Continued

473442118162206. Location number, 24/36-16A6.
LOCATION.--lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).
REMARKS.--Monitored depth interval from 451 to 491 to (137.5 to 149.7 m), water level meacured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.93 ft (10.65 m) below land-surface datum, Mar. 2, 1976; lowest measured, 66.34 ft (20.22 m) below land-surface datum, Sept. 30, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	48.4	Feb. 5, 1980	48.3	Apr. 29, 1980	46.9	Aug. 19, 1980	46.2
Dec. 10	48.7	Mar. 19	47.6	June 23	45.9		

473442118162207. Local number, 24/36-16A7.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).
REMARKS.--Monitored depth interval from 590 to 635 ft (179.8 to 193.5 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 162.47 ft (49.52 m) below land-surface datum, Mar. 22, 1972; lowest measured, 211.67 ft (64.52 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	203.2	Feb. 5, 1980	194.2	Apr. 29, 1980	191.3	Aug. 19, 1980	205.6
Dec. 10	197.5	Mar. 19	191.6	June 23	200.6		

473442118162208. Local number, 24/36-16A8.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Altitude of land-surface datum is 2,372 ft (723.0 m).
REMARKS.--Monitored depth interval from 728 to 750 ft (221.9 to 228.6 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 162.82 ft (49.63 m) below land-surface datum, Mar. 22, 1972; lowest measured, 214.77 ft (65.46 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	203.1	Feb. 5, 1980	194.3	Apr. 29, 1980	191.3	Aug. 19, 1980	205.6
Dec. 10	198.5	Mar. 19	191.6	June 23	200.7		

473547117493001. Local number 24/39-1R1.
LOCATION.--Lat 47°35'47", long 117°49'30", Hydrologic Unit 17010307.
Owner: Vern Puls.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 200 ft (61.0 m), cased to 45 ft (13.7 m).
DATUM.--Altitude of land-surface datum is 2,420 ft (738 m).
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.02 ft (4.27 m) below land-surface datum, Mar. 1, 1976; lowest measured, 56.00 ft (17.07 m) below land-surface datum, Sept. 7, 1967.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	31.57	Mar. 20, 1980	20.18				

474130118293001. Local number, 25/34-2G1.
LOCATION.--Lat 47°41'30", long 118°29'30", Hydrologic Unit 17020013.
Owner: Merwin Hauger.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 320 ft (97.5 m), cased to 60 ft (18.3 m).
DATUM.--Altitude of land-surface datum is 2,340 ft (713 m).
PERIOD OF RECORD.--October 1968, March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 84.76 ft (25.84 m) below land-surface datum, Oct. 22, 1976; lowest measured, 108.5 ft (33.07 m) below land-surface datum, Oct. 15, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	108.5	Mar. 19, 1980	101.0				

LINCOLN COUNTY--Continued

474512118423001. Local number, 26/33-18G1.
LOCATION.--Lat 47°45'12", long 118°42'30", Hydrologic Unit 17020013.
Owner: City of Wilbur.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 450 ft (137.2 m), cased to 50 ft (15.2 m).
DATUM.--Altitude of land-surface datum is 2,245 ft (684.3 m).
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.09 ft (14.96 m) below land-surface datum, Apr. 6, 1971; lowest measured, 85.5 ft (26.06 m) below land-surface datum, July 13, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	79.85	Mar. 18, 1980	64.33				

OKANOGAN COUNTY

484312119321301. Local number, 37/26-10H1.
LOCATION.--Lat 48°43'12", long 119°32'13", Hydrologic Unit 17020006.
Owner: Loy McDaniel.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 10 in (250 mm), depth 95 ft (29.0 m).
DATUM.--Altitude of land-surface datum is 1,450 ft (442 m).
PERIOD OF RECORD.--November 1964 to Oct. 4, 1979 (discontinued).
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 73.48 ft (22.40 m) below land-surface datum, Apr. 23, 1975; lowest measured, 98.8 ft (30.11 m) below land-surface datum, Jan. 11, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	83.34						

484033119310302. Local number, 37/26-26J1.
LOCATION.--Lat 48°40'33", long 119°31'03", Hydrologic Unit 17020006.
Owner: Plateau Orchards, Inc.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 90 ft (27.4 m), cased to 90 ft (27.4 m).
DATUM.--Land-surface datum is 1,431.84 ft (436.425 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--July 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.38 ft (16.58 m) below land-surface datum, Apr. 23, 1975; lowest dry, water level not measurable, Aug. 25, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	62.64	Jan. 23, 1980	59.89	May 14, 1980	60.00	Aug. 26, 1980	63.03
Nov. 28	60.36	Mar. 19	58.86	July 1	62.98		

SPOKANE COUNTY

471547117402301. Local number, 21/41-31R1.
LOCATION.--Lat 47°15'47", long 117°40'23", Hydrologic Unit 17060109.
Owner: Osborn Belsby.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock-supply artesian well, diameter 10 in (250 mm), depth 120 ft (36.6 m).
DATUM.--Altitude of land-surface datum is 2,070 ft (631 m).
PERIOD OF RECORD.--February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.11 ft (0.338 m) above land-surface datum, Mar. 12, 1979; lowest measured, 16.36 ft (4.99 m) below land-surface datum, Oct. 24, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	4.20	Mar. 27, 1980	0.45				

472540117224501. Local number, 22/43-4F1.
LOCATION.--lat 47°25'40", long 117°22'45", Hydrologic Unit 17010306 at Spangle.
Owner: Town of Spangle.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, depth 150 ft (45.7 m).
DATUM.--Altitude of land-surface datum is 2,440 ft (744 m).
PERIOD OF RECORD.--February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.83 ft (7.26 m) below land-surface datum, Apr. 24, 1969; lowest measured, 40.24 ft (12.265 m) below land-surface datum, Sept. 9, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1979	32.76	Mar. 27, 1980	30.13				

SPOKANE COUNTY--Continued

472804117403401. Local number, 23/41-19R1.
LOCATION.--Lat 47°28'04", long 117°40'34", Hydrologic Unit 17060108.
Owner: P. M. Steele.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 516 ft (157.3 m), cased to 24 ft (7.3 m).
DATUM.--Altitude of land-surface datum is 2,365 ft (720.9 m).
PERIOD OF RECORD.--June 1956, February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.0 ft (16.46 m) below land-surface datum, June 24, 1956; lowest measured, 110.8 ft (33.77 m) below land-surface datum, Oct. 13, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	108.5	Mar. 27, 1980	92.9				

473607117322801. Local number, 24/42-6J1.
LOCATION.--Lat 47°36'07", long 117°32'28", Hydrologic Unit 17010306.
Owner: Robert Welsh.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 115 ft (35.1 m), cased to 60 ft (18.3 m).
DATUM.--Altitude of land-surface datum is 2,395 ft (730.0 m).
PERIOD OF RECORD.--October 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.01 ft (10.67 m) below land-surface datum, Mar. 24, 1975; lowest measured, 42.65 ft (13.00 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 15, 1979	41.69	Mar. 24, 1980	39.37				

473240117261901. Local number, 24/42-25G1.
LOCATION.--Lat 47°32'40", long 117°26'19", Hydrologic Unit 17010306.
Owner: Henry F. Mindrup.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 135 ft (41.1 m), cased to 25 ft (7.6 m).
DATUM.--Altitude of land-surface datum about 2,320 ft (707 m).
PERIOD OF RECORD.--February 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.29 ft (5.58 m) below land-surface datum, May 6, 1969; lowest measured, 52.39 ft (15.97 m) below land-surface datum, Sept. 19, 1967.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 5, 1979	39.07	Mar. 24, 1980	22.02				

473849117275401. Local number, 25/42-14L1.
LOCATION.--Lat 47°39'40", long 117°27'54", Hydrologic Unit 17010307.
Owner: Riverside Memorial Park.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 72 mi (1,800 mm), depth 110 ft (33.5 m), lined with concrete to 82 ft (25.0 m), perforated 82 to 100 ft (25.0 to 30.5 m).
DATUM.--Altitude of land-surface datum is 1,787 ft (544.7 m).
REMARKS.--Water levels used in monthly Water Resources Review.
PERIOD OF RECORD.--December 1941 to Feb. 20, 1980 (discontinued).
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 81.73 ft (24.91 m) below land-surface datum, June 7, 1948; lowest measured, 101.96 ft (31.08 m) below land-surface datum, Sept. 24, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 26, 1979	97.41	Dec. 26, 1979	99.32	Jan. 28, 1980	100.55	Feb. 20, 1980	96.31
Nov. 23	97.46						

473924117130001. Local number, 25/44-23D1.
LOCATION.--Lat 47°39'24", long 117°13'00", Hydrologic Unit 17010305, at U.S. Highway 10 and Evergreen Road.
Owner: Mr. Boisevert.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 48 to 18 in (1,200 to 450 mm), depth 97 ft (29.6 m), lined with brick to 97 ft (29.6 m).
DATUM.--Land-surface datum is 2,016.74 ft (614.702 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1931 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 77.85 ft (23.73 m) below land-surface datum, Apr. 8, 1950; lowest measured, 95.40 ft (29.08 m) below land-surface datum, Dec. 8, 1931.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1979	92.30	Mar. 25, 1980	89.4				

SPOKANE COUNTY--Continued

474011117072901. Local number, 25/45-16C1.
LOCATION.--Lat 47°40'11", long 117°07'29", Hydrologic Unit 17010305.
Owner: Inland Empire Paper Company.
AQUIFER.--Glacial sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug unused irrigation water-table well, diameter 96 in (2,400 mm), depth 129 ft (39.3 m), lined with gunite cement to 129 ft (39.3 m).
DATUM.--Land-surface datum is 2,060.4 ft (628.01 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1929 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 84.56 ft (25.77 m) below land-surface datum, June 17, 1953; lowest measured, 114.53 ft (34.91 m) below land-surface datum, Dec. 8, 1931.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1979	109.68	Apr. 23, 1980	106.21	June 24, 1980	104.77	Aug. 26, 1980	109.34
Dec. 7	109.12	May 23	105.06	July 23	107.47	Sept. 25	109.27
Mar. 25, 1980	106.66						

474436117245501. Local number, 26/43-19A1.
LOCATION.--Lat 47°44'36", long 117°24'55", Hydrologic Unit 17010308.
Owner: Whitworth Water District No. 2.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug public-supply and irrigation water-table well, diameter 78 in (1,950 mm), depth 162 ft (49.4 m), lined with concrete to 162 ft (49.4 m).
DATUM.--Land-surface datum is 1,935.91 ft (590.065 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1930 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 133.72 ft (40.758 m) below land-surface datum Mar. 15, 1934; lowest measured, 143.09 ft (43.61 m) below land-surface datum, Dec. 5, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 23, 1979	139.67	Jan. 31, 1980	138.2	May 30, 1980	137.18	Sept. 25, 1980	138.99
Dec. 5	143.09	Mar. 26	137.73	July 29	137.99		

474224117075901. Local number, 26/45-32J2.
LOCATION.--Lat 47°42'24", long 117°07'59", Hydrologic Unit 17010305, Otis Orchards.
Owner: R. L. McVicker.
AQUIFER.--Glacial sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 155 ft (47.2 m), cased to 155 ft (47.2 m), perforated from 132 to 154 ft (40.2 to 47.0 m).
DATUM.--Altitude of land-surface datum is 2,080 ft (634 m).
PERIOD OF RECORD.--November 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 116.14 ft (35.40 m) below land-surface datum, June 15, 1961; lowest measured, 135.26 ft (41.23 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1979	133.28	Feb. 8, 1980	132.5	May 23, 1980	129.40	Sept. 30, 1980	132.24B
Dec. 7	133.36	Mar. 25	131.46A	July 23	132.11B		

STEVENS COUNTY

475525117465301. Local number, 28/40-17J1.
LOCATION.--Lat 47°55'25", long 117°46'53", Hydrologic Unit 17010307, at Ford.
Owner: R. J. Seagle.
AQUIFER.--Alluvial sand and gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 36 in (900 mm), depth 20 ft (6.1 m), lined with concrete to 20 ft (6.1 m).
DATUM.--Altitude of land-surface datum is 1,790 ft (546 m).
PERIOD OF RECORD.--October 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.82 ft (0.250 m) below land-surface datum, Apr. 7, 1969; lowest measured, 19.05 ft (5.81 m) below land-surface datum, Dec. 13, 1976.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 1, 1979	17.25	Feb. 21, 1980	14.48	June 6, 1980	8.41	Sept. 22, 1980	15.84
Dec. 17	18.19	Apr. 8	7.61	Uuly 16	12.06		

A Well being pumped.
B Well recently pumped.

WALLA WALLA COUNTY

460020118225701. Local number, 6/35-12M1.
LOCATION.--Lat 46°00'20", long 118°22'57", Hydrologic Unit 17070102.
Owner: Wynn Estes.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 10 to 8 in (250 to 200 mm), depth 590 ft (179.8 m), cased to 495 ft (150.9 m).
DATUM.--Altitude of land-surface datum is 768 ft (234.1 m).
PERIOD OF RECORD.--April 1955 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 57.4 ft (17.5 m) above land-surface datum, Mar. 21, 1978; lowest measured, 108.7 ft (33.14 m) below land-surface datum, Oct. 10, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1979	108.7	Mar. 17, 1980	60.4				

460014118281801. Local number, 6/35-18A1.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Altitude of land-surface datum is 670 ft (204 m).
REMARKS.--Monitored depth interval from 90 to 230 ft (27.4 to 70.1 m), water level measured in 12 in (300 mm) diameter casing.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.7 ft (4.48 m) below land-surface datum, Mar. 17, 1980; lowest measured, 45.70 ft (13.93 m) below land-surface datum, Jan. 27, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1979	28.9	Jan. 29, 1980	23.3	May 8, 1980	25.6	Aug. 27, 1980	44.2
Dec. 13	19.4	Mar. 17	14.7	July 1	24.8		

460014118281802. Local number, 6/35-18A2.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Altitude of land-surface datum is 670 ft ft (204 m).
REMARKS.--Monitored depth interval from 710 to 730 ft (216.4 to 222.5 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.20 ft (43.95 m) below land-surface datum, Apr. 1, 1974; lowest measured, 200.8 ft (61.20 m) below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1979	188.5	Jan. 29, 1980	171.3	May 8, 1980	174.5	Aug. 27, 1980	188.0
Dec. 13	177.2	Mar. 17	154.2	July 1	174.9		

460014118281803. Local number, 6/35-18A3.
LOCATION.--lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Altitude of land-surface datum is 670 ft (204 m).
REMARKS.--Monitored depth interval from 740 to 1,204 ft (225.6 to 337.0 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.10 ft (44.23 m) below land-surface datum, Apr. 1, 1974; lowest measured, 201.0 ft (61.26 m) below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1979	189.0	Jan. 29, 1980	171.8	May 8, 1980	174.9	Aug. 27, 1980	188.3
Dec. 13	177.7	Mar. 17	154.7	July 1	176.8		

WALLA WALLA COUNTY--Continued

460014118281804. Local number, 6/35-18A4.
LOCATION.--46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Altitude of land-surface datum is 670 ft (204 m).
REMARKS.--Monitored depth interval from 1,216 to 1,308 ft (370.6 to 398.7 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.60 ft (44.38 m) below land-surface datum, Apr. 1, 1974; lowest measured, 201.9 ft (61.54 m) below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1979	189.5	Jan. 29, 1980	172.6	May 8, 1980	175.7	Aug. 27, 1980	180.2
Dec. 13	178.5	Mar. 17	155.5	July 1	184.8		

460341118350701. Local number, 7/34-29C1.
LOCATION.--Lat 46°03'41", long 118°35'07", Hydrologic Unit 17070102.
Owner: Lowden A. Johnson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 to 6 in (300 to 150 mm), depth 1,201 ft (366.1 m), cased to 610 ft (185.9 m).
DATUM.--Altitude of land-surface datum is 505 ft (153.9 m).
PERIOD OF RECORD.--October 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 68 ft (20.7 m) below land-surface datum, Mar. 3, 1966; lowest measured, 121.7 ft (37.09 m) below land-surface datum, Oct. 25, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 11, 1979	142.2A	Mar. 17, 1980	104.0				

460238118225301. Local number, 7/35-36F1.
LOCATION.--Lat 46°02'38", long 118°22'53", Hydrologic Unit 17070102, at College Place.
Owner: College Place Water Company
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply artesian well, diameter 8 in (200 mm), depth 810 ft (246.9 m).
DATUM.--Altitude of land-surface datum is 796 ft (242.6 m).
PERIOD OF RECORD.--March 1948, April 1955 to February 1957, October 1959 to October 1962, March 1964 to November 1973, October 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.0 ft (11.28 m) above land-surface datum, Mar. 18, 1948; lowest measured, 172.0 ft (52.44 m) below land-surface datum, Oct. 10, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1979	172.0	Mar. 17, 1980	105.0				

460457118200901. Local number, 7/36-17L1.
LOCATION.--Lat 46°04'57", long 118°20'09", Hydrologic Unit 17070102, Veteran's Memorial Park.
Owner: City of Walla Walla.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 to 8 in (300 to 200 mm), depth 2,728 ft (831.5 m), cased to 2,155 ft (565.8 m).
DATUM.--Altitude of land-surface datum is 990 ft (302 m).
PERIOD OF RECORD.--April 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.51 ft (15.09 m) below land-surface datum, May 10, 1960; lowest measured, 166.70 ft (50.81 m) below land-surface datum, Aug. 2, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1979	162.5	Mar. 17, 1980	132.0				

460335118172301. Local number, 7/36-27G1.
LOCATION.--Lat 46°03'35", long 118°17'23", Hydrologic Unit 17070102.
Owner: Rudolph Depping.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 10 to 8 in (250 to mm), depth 450 ft (137.2 m), cased to 357 ft (108.8 m).
DATUM.--Altitude of land-surface datum is 1,080 ft (329 m).
PERIOD OF RECORD.--April 1955 to current year.
EXTREMES FOR PERIOD OF RECORD.-- Highest water level measured, 2.0 ft (0.61 m) above land-surface datum, Apr. 19, 1956; lowest measured, 61 ft (18.6 m) below land-surface datum, July 14, 1970.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1979	64.0	Mar. 17, 1980	45.0				

A Well being pumped.

WHITMAN COUNTY

463623117054501. Local number, 13/45-13L2.
LOCATION.--Lat 46°36'23", long 117°05'45", Hydrologic Unit 17060108.
Owner: Alfred Druffel.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 190 ft (57.9 m), line with steel to 60 ft (18.3 m).
DATUM.--Altitude of land-surface datum is 2,680 ft (817 m).
PERIOD OF RECORD.--May 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 71.95 ft (21.93 m) below land-surface datum, Mar. 24, 1964; lowest measured, 78.70 ft (23.99 m) below land-surface datum, Oct. 10, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1979	77.7	Mar. 20, 1980	75.3				

464343117131701. Local number, 14/44-1E1.
LOCATION.--Lat 46°43'43", long 117°13'17", Hydrologic Unit 17060108, near Pullman.
Owner: R. Harlow.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 375 ft (114.3 m).
DATUM.--Altitude of land-surface datum is 2,565 ft (781.8 m).
PERIOD OF RECORD.--August 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 126.7 ft (38.62 m) below land-surface datum, July 11, 1980; lowest measured, 271.00 ft (82.60 m) below land-surface datum, Aug. 21, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1979	144.7	Jan. 24, 1980	143.1	May 16, 1980	130.4	Sept. 5, 1980	129.8
Nov. 30	144.2	Mar. 25	132.1	July 11	126.7		

464349117101101. Local number, 14/45-5F1.
LOCATION.--Lat 46°43'49", long 117°10'11", Hydrologic Unit 17060108, Pullman.
Owner: Washington State University, well No. 1.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 4 in (100 mm), depth 145 ft (44.2 m), cased.
DATUM.--Land-surface datum is 2,364.4 ft (720.67 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1935 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.52 ft (5.95 m) below land-surface datum, Mar. 19, 1935; lowest measured, 90.0 ft (27.43 m) below land-surface datum, Aug. 5, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1979	86.2	Jan. 24, 1980	85.6	May 16, 1980	85.8	Aug. 5, 1980	90.0
Nov. 30	83.8	Mar. 25	85.6	July 11	86.2		

465800117343001. Local number, 17/42-18M1.
LOCATION.--Lat 46°58'00", long 117°34'30", Hydrologic Unit 17060108, near Thera.
Ownber: Phil Smick.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 204 ft (62.2 m).
DATUM.--Altitude of land-surface datum is 2,035 ft (620.3 m).
PERIOD OF RECORD.--December 1954 to August 1956, April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.65 ft (44.09 m) below land-surface datum, Apr. 6, 1972; lowest measured, 165.2 ft (50.35 m) below land-surface datum, July 3, 1972.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	163.7	Mar. 20, 1980	146.1				

470452117414401. Local number, 18/41-6L1.
LOCATION.--Lat 47°04'52", long 117°41'44", Hydrologic Unit 17060109.
Owner: Lyle Harwood.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 575 ft (175.3 m).
DATUM.--Altitude of land-surface datum is 1,940 ft (591 m).
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.9 ft (14.30 m) below land-surface datum, Mar. 14, 1968; lowest measured, 171.4 ft (52.24 m) below land-surface datum, Oct. 4, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	171.4	Mar. 20, 1980	171.0				

WHITMAN COUNTY--Continued

470718117232801. Local number, 19/43-28B1.
LOCATION.--Lat 47°07'18", long 117°23'28", Hydrologic Unit 17060109, near Thornton.
Owner: McGregor Co.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled industrial artesian well, diameter 8 in (200 mm), depth 84 ft (25.6 m).
DATUM.--Altitude of land-surface datum is 2,290 ft (698 m).
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.14 ft (3.70 m) above land-surface datum, Mar. 3, 1976; lowest measured, 2.0 ft (0.61 m) above land-surface datum, Oct. 29, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1979	+8.51	Mar. 27, 1980	+9.87				

470707117040502. Local number, 19/45-25G2.
LOCATION.--Lat 47°07'07", long 117°04'05", Hydrologic Unit 17060109.
Owner: Bert Lehn.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 134 ft (40.8 m).
DATUM.--Altitude of land-surface datum is 2,600 ft (792 m).
PERIOD OF RECORD.--December 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.49 ft (5.03 m) below land-surface datum, Feb. 27, 1968; lowest measured, 42.83 ft (13.06 m) below land-surface datum, Dec. 22, 1967.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1979	25.6	Mar. 20, 1980	22.64				

471413117510801. Local number, 20/39-12N1.
LOCATION.--Lat 47°14'13", long 117°51'08", Hydrologic Unit 17060109, near Lamont.
Owner: Earl Swift.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 284 ft (86.6 m).
DATUM.--Altitude of land-surface datum is 2,110 ft (643 m).
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 159.7 ft (48.68 m) below land-surface datum, Nov. 5, 1975; lowest measured, 178.86 ft (54.52 m) below land-surface datum, Oct. 12, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1979	168.4	Mar. 20, 1980	162.5				

YAKIMA COUNTY

461934120003701. Local number, 10/22-25F1.
LOCATION.--Lat 46°19'34", long 120°00'37", Hydrologic Unit 17030003, at Sunnyside.
Owner: City of Sunnyside.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-level well, diameter 16 in (400 mm), depth 1,570 ft (478.5 m), cased to 1,283 ft (391.1 m).
DATUM.--Altitude of land-surface datum is 745 ft (227.1 m).
PERIOD OF RECORD.--May 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.7 ft (6.00 m) below land-surface datum. Jan. 2, 1974; lowest measured, 79.8 ft (24.32 m) below land-surface datum, July 30, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1979	77.3	Mar. 12, 1980	64.9	July 7, 1980	70.3	Sept. 8, 1980	76.7
Dec. 17	69.5	May 7	60.5				

463200120462002. Local number, 12/16-13D2.
LOCATION.--46°32'00", long 120°46'20", Hydrologic Unit 17030003.
Owner: Herke Brothers.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled test water-table well, diameter 8 in (200 mm), depth 130 ft (39.0 m).
DATUM.--Altitude of land-surface datum about 1,800 ft (549 m).
PERIOD OF RECORD.--March 1951 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.37 ft (15.35 m) below land-surface datum, June 15, 1951; lowest measured, 124.7 ft (38.01 m) below land-surface datum, Sept. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1979	119.6B	Feb. 6, 1980	99.7B	June 18, 1980	119.7	Aug. 18	122.3
Dec. 5	113.8B	Apr. 21	118.7B				

+ Water levels above land surface.
B Well recently pumped.

YAKIMA COUNTY--Continued

463210120523001. Local number, 12/16-18C1.

LOCATION.--lat 46°32'10", long 120°52'30", Hydrologic Unit 17030003, near Tampico.

Owner: Mandor-Hazen.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 14 in (350 mm), depth 287 ft (87.5 m), cased to 80 ft (24.4 m).

DATUM.--Altitude of land-surface datum is 2,160 ft (658 m).

PERIOD OF RECORD.--May 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.55 ft (1.39 m) below land-surface datum, July 21, 1972; lowest measured, 51.2 ft (15.61 m) below land-surface datum, Aug. 26, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1979	27.2	Feb. 6, 1980	19.2				

463226120412901. Local number, 12/17-9J3.

LOCATION.--Lat 46°32'26", long 120°41'29", Hydrologic Unit 17030003.

Owner: Walter McInnes.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (100 mm), depth 479 ft (146.0 m), cased to 430 ft (131.1 m).

DATUM.--Altitude of land-surface datum is 1,460 ft (445 m).

PERIOD OF RECORD.--January 1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 59.7 ft (18.20 m) below land-surface datum, Mar. 13, 1980; lowest measured, 193.1 ft (58.86 m) below land-surface datum, Aug. 8, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1979	170.5	Mar. 13, 1980	59.7				
Dec. 5	177.6						

463212120432301. Local number, 12/17-17C1.

LOCATION.--Lat 46°32'12", long 120°43'23", Hydrologic Unit 17030003.

Owner: R. C. Cornelius.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 8 in (200 mm), depth 243 ft (74.1 m), cased to 166 ft (50.6 m).

DATUM.--Altitude of land-surface datum is 1,562 ft (476.1 m).

PERIOD OF RECORD.--June 1959 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.60 ft (0.792 m) above land-surface datum, May 22, 1962; lowest measured, 115.6 ft (35.24 m) below land-surface datum, Sept. 14, 1972.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1979	115.6	Mar. 13, 1980	46.0				

464023120423401. Local number, 14/17-28L1.

LOCATION.--Lat 46°40'23", long 120°42'34", Hydrologic Unit 17030002, at Cowiche.

Owner: Robert Tate.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 82 ft (25.0 m).

DATUM.--Altitude of land-surface datum is 1,738 ft (529.7 m).

PERIOD OF RECORD.--May 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.1 ft (4.91 m) below land-surface datum, Oct. 24, 1974; lowest measured, 23.9 ft (7.28 m) below land-surface datum, July 1, 1976.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1979	20.8A	Feb. 6, 1980	20.4B	June 19, 1980	20.9B	Aug. 20, 1980	20.7B
Dec. 4	13.4B	Apr. 21	18.4B				

464445120360001. Local number, 15/18-32K3.

LOCATION.--Lat 46°44'45", long 120°36'00 Hydrologic Unit 17030001.

Owner: Wenas Valley Grange.

AQUIFER.--Glacial gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled institutional water-table well, diameter 8 to 6 in (200 to 150 mm), depth 85 ft (25.9 m), cased.

DATUM.--Altitude of land-surface datum is 1,460 ft (445 m).

PERIOD OF RECORD.--June 1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.73 ft (11.50 m) below land-surface datum, Oct. 23, 1957; lowest measured, 74.14 ft (22.60 m) below land-surface datum, Nov. 6, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 2, 1979	52.9	Feb. 6, 1980	51.7	June 19, 1980	50.7	Aug. 20, 1980	52.3
Dec. 4	46.2	Apr. 21	50.4				

A Well being pumped.
B Well recently pumped.

SPOKANE COUNTY

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOT-TOM OF SAMPLE INTER-VAL (FT)
25/44E-07J03	474034117170001	47 40 34	117 17 00	01	79-10-22	0825	80.00	120	81
					79-10-22	0840	80.00	120	84
					79-10-22	0900	80.00	120	90
					79-11-15	1415	79.49	120	80
					79-11-15	1430	79.49	120	83
					79-11-15	1445	79.49	120	89
					79-12-18	0930	80.10	120	81
					79-12-18	0945	80.10	120	84
					79-12-18	1000	80.10	120	90
					80-02-19	1000	78.80	120	80
					80-02-19	1015	78.80	120	83
					80-02-19	1030	78.80	120	89
					80-03-17	0850	77.70	120	78
					80-03-17	0915	77.70	120	81
					80-03-17	0940	77.70	120	87
					80-04-22	0825	77.10	120	78
					80-04-22	0835	77.10	120	81
					80-04-22	0850	77.10	120	87
					80-05-29	0915	74.64	120	76
					80-05-29	0930	74.64	120	79
					80-05-29	0945	74.64	120	85
					80-07-02	0920	75.90	120	77
					80-07-02	0935	75.90	120	80
					80-07-02	0945	75.90	120	86
					80-07-31	0815	78.56	120	80
					80-07-31	0830	78.56	120	83
					80-07-31	0845	78.56	120	89
					80-08-28	1110	80.03	120	81
					80-08-28	1120	80.03	120	84
					80-08-28	1130	80.03	120	90
					80-09-30	1135	79.41	120	80
					80-09-30	1140	79.41	120	83
					80-09-30	1145	79.41	120	89

DATE OF SAMPLE	DEPTH TO TOP OF SAMPLE INTER-VAL (FT)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	ALKA-LINITY FIELD (MG/L AS CACO3)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)
79-10-22	80	293	8.4	150	1.4	1.0	.50	1.5	6.6	.000	.00
79-10-22	83	291	8.4	150	1.4	1.0	.48	1.5	6.6	.010	.03
79-10-22	89	290	8.4	150	1.4	1.0	.41	1.4	6.2	.000	.00
79-11-15	79	294	8.5	140	1.7	1.3	.56	1.9	8.2	.000	.00
79-11-15	82	290	8.6	140	1.3	1.3	.32	1.6	7.2	.000	.00
79-11-15	88	290	8.6	140	1.5	1.3	.40	1.7	7.5	.000	.00
79-12-18	80	289	8.6	140	1.4	1.1	.40	1.5	6.6	.010	.03
79-12-18	83	288	8.6	140	1.2	1.2	.68	1.9	8.3	.010	.03
79-12-18	89	291	8.6	140	1.2	1.1	.48	1.6	7.0	.030	.09
80-02-19	79	289	8.7	140	1.2	1.0	.78	1.8	7.9	.000	.00
80-02-19	82	285	8.8	140	1.2	1.0	.44	1.4	6.4	.000	.00
80-02-19	88	284	8.8	140	1.2	1.0	.19	1.2	5.3	.000	.00
80-03-17	77	286	8.0	130	.9	.96	.24	1.2	5.3	.010	.03
80-03-17	80	285	8.0	130	.9	.95	.16	1.1	4.9	.010	.03
80-03-17	86	285	8.0	130	.9	.95	.24	1.2	5.3	.010	.03
80-04-22	77	290	8.0	130	1.1	.87	.29	1.2	5.1	.000	.00
80-04-22	80	290	8.0	130	1.0	.91	.23	1.1	5.0	.000	.00
80-04-22	86	288	8.0	130	1.0	.90	.23	1.1	5.0	.000	.00
80-05-29	75	297	--	130	1.0	.92	.59	1.5	6.7	.000	.00
80-05-29	78	299	--	130	1.0	.92	.66	1.6	7.0	.000	.00
80-05-29	84	300	--	130	1.0	.91	.84	1.8	7.7	.000	.00
80-07-02	76	293	--	140	1.1	.87	.54	1.4	6.2	.000	.00
80-07-02	79	292	--	140	1.1	.86	.42	1.3	5.7	.000	.00
80-07-02	85	292	--	170	1.0	.86	.48	1.3	5.9	.000	.00
80-07-31	79	305	--	130	1.3	1.1	--	--	--	.010	.03
80-07-31	82	304	--	130	1.0	1.1	.41	1.5	6.7	.010	.03
80-07-31	88	308	--	130	1.1	1.1	.37	1.5	6.5	.010	.03
80-08-28	80	300	--	130	1.7	1.1	.21	1.3	5.8	.010	.03
80-08-28	83	298	--	130	1.7	1.4	.24	1.6	7.3	.010	.03
80-08-28	89	300	--	130	1.6	1.4	.31	1.7	7.6	.010	.03
80-09-30	79	298	--	140	1.7	1.1	.33	1.4	6.3	.000	.00
80-09-30	82	298	--	140	1.5	1.1	.26	1.4	6.0	.000	.00
80-09-30	88	297	--	140	1.6	1.1	.29	1.4	6.2	.010	.03

SPOKANE COUNTY--Continued

LOCAL IDENT- I- FIER	STATION NUMBER	LAT- I- TUDE	LONG- I- TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOT- TOM OF SAMPLE INTER- VAL (FT)
			SPOKANE						
25/44E-07K02	474040117172601	47 40 40	117 17 26	01	79-10-22	1240	71.60	117	73
					79-10-22	1250	71.60	117	76
					79-10-22	1310	71.60	117	82
					79-11-16	1125	70.99	117	72
					79-11-16	1140	70.99	117	75
					79-11-16	1155	70.99	117	81
					79-12-18	1205	71.60	117	73
					79-12-18	1225	71.60	117	76
					79-12-18	1240	71.60	117	82
					80-02-19	1315	70.60	117	71
					80-02-19	1330	70.60	117	74
					80-02-19	1345	70.60	117	80
					80-03-17	1120	69.10	117	70
					80-03-17	1140	69.10	117	73
					80-03-17	1205	69.10	117	79
					80-04-22	1100	68.50	117	70
					80-04-22	1115	68.50	117	73
					80-04-22	1130	68.50	117	79
					80-05-29	1140	66.10	117	67
					80-05-29	1150	66.09	117	70
					80-05-29	1200	66.09	117	76
					80-07-02	1110	67.50	117	69
					80-07-02	1120	67.50	117	72
					80-07-02	1130	67.50	117	78
					80-07-31	1000	70.20	117	72
					80-07-31	1010	70.20	117	75
					80-07-31	1030	70.20	117	81
					80-08-28	0940	71.15	117	72
					80-08-28	0950	71.15	117	75
					80-08-28	1000	71.15	117	81
					80-09-30	1240	70.96	117	72
					80-09-30	1245	70.96	117	75
					80-09-30	1250	70.96	117	81

DATE OF SAMPLE	DEPTH TO TOP OF SAMPLE INTER- VAL (FT)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	ALKA- LINITY FIELD (MG/L AS CACO3)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS TOTAL (MG/L AS PO4)
79-10-22	72	310	8.3	150	3.3	1.2	.43	1.6	7.2	.010	.03
79-10-22	75	310	8.3	150	3.3	1.2	.53	1.7	7.7	.010	.03
79-10-22	81	312	8.3	150	3.3	1.2	.40	1.6	7.1	.010	.03
79-11-16	71	308	8.8	150	2.8	1.5	.21	1.7	7.6	.000	.00
79-11-16	74	308	8.8	150	3.1	1.4	.32	1.7	7.6	.000	.00
79-11-16	80	307	8.8	150	2.8	1.5	.62	2.1	9.4	.010	.03
79-12-18	72	303	8.8	150	2.7	1.3	.89	2.2	9.7	.010	.03
79-12-18	75	304	8.8	160	2.7	1.3	.62	1.9	8.5	.010	.03
79-12-18	81	304	8.8	150	2.7	1.2	.38	1.6	7.0	.010	.03
80-02-19	70	298	8.8	140	2.9	1.2	.31	1.5	6.7	.020	.06
80-02-19	73	294	8.8	140	3.1	1.2	.19	1.4	6.2	.010	.03
80-02-19	79	296	8.8	140	2.9	1.2	.14	1.3	5.9	.010	.03
80-03-17	69	305	8.8	130	2.7	1.3	.20	1.5	6.6	.020	.06
80-03-17	72	305	8.8	130	2.6	1.2	.15	1.4	6.0	.020	.06
80-03-17	78	306	8.8	130	2.7	1.2	.16	1.4	6.0	.010	.03
80-04-22	69	306	8.2	140	2.4	1.1	.29	1.4	6.2	.010	.03
80-04-22	72	306	8.2	140	2.4	1.1	.25	1.4	6.0	.000	.00
80-04-22	78	306	8.2	140	2.5	--	.72	--	--	.000	.00
80-05-29	66	314	--	140	2.4	1.1	--	--	--	.020	.06
80-05-29	69	315	--	140	2.4	1.1	--	--	--	.030	.09
80-05-29	75	309	--	140	2.4	1.1	.52	1.6	7.2	.010	.03
80-07-02	68	308	--	150	2.4	1.0	.49	1.5	6.6	.010	.03
80-07-02	71	308	--	150	2.3	1.1	.32	1.4	6.3	.000	.00
80-07-02	77	308	--	150	2.3	1.0	--	--	--	.010	.03
80-07-31	71	315	--	140	3.1	1.2	.69	1.9	8.4	.020	.06
80-07-31	74	317	--	140	3.2	1.2	.49	1.7	7.5	.020	.06
80-07-31	80	325	--	140	2.7	1.3	.51	1.8	8.0	.020	.06
80-08-28	71	324	--	140	3.3	1.2	.27	1.5	6.5	.020	.06
80-08-28	74	321	--	140	3.3	1.2	.29	1.5	6.6	.020	.06
80-08-28	80	320	--	140	3.5	1.2	.26	1.5	6.5	.010	.03
80-09-30	71	319	--	150	3.7	1.2	.31	1.5	6.7	.010	.03
80-09-30	74	319	--	150	3.5	1.3	.59	1.9	8.4	.010	.03
80-09-30	80	318	--	150	3.6	1.2	.35	1.6	6.9	.010	.03

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)
25/44E-07K04	474040117172401	47 40 40	117 17 24	01	79-10-22	1040	72.20	116	73
					79-10-22	1055	72.20	116	76
					79-10-22	1105	72.20	116	82
					79-11-16	1035	71.72	116	73
					79-11-16	1050	71.72	116	76
					79-11-16	1105	71.72	116	82
					79-12-18	1110	72.30	116	73
					79-12-18	1120	72.30	116	76
					79-12-18	1135	72.30	116	82
					80-02-19	1145	71.20	116	72
					80-02-19	1200	71.20	116	75
					80-02-19	1215	71.20	116	81
					80-03-17	1025	69.90	116	71
					80-03-17	1050	69.90	116	74
					80-03-17	1100	69.90	116	80
					80-04-22	0955	69.30	116	70
					80-04-22	1005	69.30	116	73
					80-04-22	1020	69.30	116	79
					80-05-29	1045	66.82	116	68
					80-05-29	1100	66.82	116	71
					80-05-29	1110	66.82	116	77
					80-07-02	1030	68.30	116	69
					80-07-02	1040	68.30	116	72
					80-07-02	1050	68.30	116	78
					80-07-31	0925	70.90	116	72
					80-07-31	0935	70.90	116	75
					80-07-31	0945	70.90	116	81
					80-08-28	1020	71.82	116	73
					80-08-28	1030	71.82	116	76
					80-08-28	1040	71.82	116	82
					80-09-30	1220	71.66	116	73
					80-09-30	1225	71.66	116	76
					80-09-30	1230	71.66	116	82
					80-10-01	1100	--	116	--
					80-10-03	0900	--	116	--
					80-10-05	1600	--	116	--
					80-10-08	1400	--	116	--
					80-10-14	1345	--	116	--
					80-10-30	1025	71.50	116	73
					80-10-30	1030	71.50	116	76

DATE OF SAMPLE	DEPTH TO TOP OF SAMPLE INTER-VAL (FT)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	ALKA-LINITY FIELD (MG/L AS CACO3)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)
79-10-22	72	318	8.3	160	3.3	1.3	.32	1.6	7.2	.010	.03
79-10-22	75	315	8.3	160	3.2	1.2	.40	1.6	7.1	.010	.03
79-10-22	81	311	8.3	160	3.2	1.2	.52	1.7	7.6	.010	.03
79-11-16	72	312	8.8	150	2.7	1.5	.26	1.8	7.8	.010	.03
79-11-16	75	310	8.8	150	2.7	1.5	.32	1.8	8.1	.000	.00
79-11-16	81	308	8.8	150	2.6	1.5	--	--	--	.010	.03
79-12-18	72	310	8.7	150	2.8	1.3	.39	1.7	7.5	.010	.03
79-12-18	75	310	8.7	150	2.7	1.3	.28	1.6	7.0	.010	.03
79-12-18	81	308	8.8	150	2.7	1.3	.29	1.6	7.0	.010	.03
80-02-19	71	293	8.8	140	2.9	1.3	.08	1.4	6.1	.010	.03
80-02-19	74	294	8.9	140	2.9	1.2	.16	1.4	6.0	.010	.03
80-02-19	80	295	8.9	140	2.8	1.2	.14	1.3	5.9	.010	.03
80-03-17	70	311	8.8	140	3.1	1.4	.34	1.7	7.7	.020	.06
80-03-17	73	307	8.8	130	2.9	1.3	.49	1.8	7.9	.020	.06
80-03-17	79	305	8.8	140	2.7	1.2	.41	1.6	7.1	.020	.06
80-04-22	69	311	8.3	140	2.7	--	.26	--	--	.010	.03
80-04-22	72	311	8.2	140	2.6	1.2	--	--	--	.010	.03
80-04-22	78	305	8.2	140	2.5	1.2	.42	1.6	7.2	.010	.03
80-05-29	67	308	--	140	2.5	1.1	.60	1.7	7.5	.010	.03
80-05-29	70	310	--	140	2.5	1.1	.64	1.7	7.7	.010	.03
80-05-29	76	314	--	140	2.4	1.1	.68	1.8	7.9	.010	.03
80-07-02	68	315	--	150	2.5	1.1	.56	1.7	7.3	.010	.03
80-07-02	71	313	--	150	2.4	1.1	.31	1.4	6.2	.010	.03
80-07-02	77	313	--	140	2.3	1.1	.46	1.6	6.9	.010	.03
80-07-31	71	324	--	140	2.8	1.4	.13	1.5	6.8	.020	.06

SPOKANE COUNTY--Continued

DATE OF SAMPLE	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	SPECIFIC CONDUCTANCE (UMHOS)	TEMPERATURE (DEG C)	ALKALINITY FIELD (MG/L AS CACO3)	CHLORIDE, DISSOLVED (MG/L AS CL)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)
80-07-31	74	316	--	140	2.6	1.3	.37	1.7	7.4	.030	.09
80-07-31	80	323	--	140	2.6	1.3	.13	1.4	6.3	.020	.06
80-08-28	72	328	--	140	3.5	1.8	.22	2.0	8.9	.020	.06
80-08-28	75	324	--	140	3.5	1.6	.24	1.8	8.1	.030	.09
80-08-28	81	327	--	140	3.6	1.6	.43	2.0	9.0	.020	.06
80-09-30	72	331	--	150	3.6	1.3	.25	1.6	6.9	.010	.03
80-09-30	75	326	--	150	3.5	1.3	.23	1.5	6.8	.010	.03
80-09-30	81	323	--	150	3.5	1.2	.36	1.6	6.9	.010	.03
80-10-01	--	--	--	--	3.4	--	--	--	--	--	--
80-10-03	--	--	--	--	3.4	--	--	--	--	--	--
80-10-05	--	--	--	--	3.3	--	--	--	--	--	--
80-10-08	--	--	--	--	3.5	--	--	--	--	--	--
80-10-14	--	--	--	--	3.4	--	--	--	--	--	--
80-10-30	72	323	--	150	3.2	1.2	.45	1.7	7.3	.020	.06
80-10-30	75	321	--	160	3.3	1.2	--	--	--	.020	.06

LOCAL IDENTIFIER	STATION NUMBER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)
25/44E-07K04	474040117172401	47 40 40	117 17 24	01	80-10-30	1035	71.50	116	82

DATE OF SAMPLE	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	SPECIFIC CONDUCTANCE (UMHOS)	TEMPERATURE (DEG C)	ALKALINITY FIELD (MG/L AS CACO3)	CHLORIDE, DISSOLVED (MG/L AS CL)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)
80-10-30	81	320	--	150	3.2	1.2	.13	1.3	5.9	.020	.06

YAKIMA COUNTY

461334120085101 - 09/21E-35H01

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM+ POTAS-SIUM DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
FEB , 1980							
12...	0900	79	46	14	21	24	2.6

DATE	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)
FEB , 1980							
12...	140	48	10	7.8	.39	.010	.03

461330120085401 - 09/21E-35H03

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM+ POTAS-SIUM DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
FEB , 1980							
12...	1000	85	72	20	24	28	3.6
12...	1100	85	69	20	22	26	3.6
12...	1300	85	68	20	23	27	3.6
12...	1655	85	66	19	22	26	3.7
13...	0959	85	68	19	23	27	3.6

DATE	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)
FEB , 1980							
12...	180	73	14	16	.48	.020	.06
12...	180	71	13	14	.35	.020	.06
12...	170	70	14	14	.51	.020	.06
12...	170	69	14	14	.81	.020	.06
13...	170	66	14	14	.66	.020	.06

12433540 - OS-1 UNNAMED TRIB TO BLUE CRK NR WELLPINIT

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
APR , 1980									
30...	1715	200	8.1	11.8	9.6	86	25	5.8	7.7
JUL									
17...	1445	760	7.8	17.4	8.6	109	32	7.1	9.0

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
APR , 1980									
30...	15	.3	2.4	97	18	1.0	.2	51	171
JUL									
17...	14	.3	2.9	127	15	.9	.5	48	196

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, VOLATILE, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	RA-226, DISSOLVED, PLANCHET COUNT (PCI/L)	URANIUM NATURAL DISSOLVED (UG/L AS U)	ARSENIC DISSOLVED (UG/L AS AS)	SELENIUM, DISSOLVED (UG/L AS SE)
APR , 1980									
30...	169	.23	22	.01	3.6	.1	5.8	2	0
JUL									
17...	192	.26	31	.00	7.1	<.1	8.8	2	0

12433542 - BLUE CRK ABV MINE DRAINAGE NR WELLPINIT D-4

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
APR , 1980									
30...	1515	92	7.9	11.8	9.4	34	10	2.3	5.3
JUL									
17...	1335	121	7.6	16.4	9.0	41	12	2.7	6.1
SEP									
16...	1410	138	7.0	13.4	8.5	50	15	3.2	6.8
NOV									
20...	0900	134	6.8	2.6	12.4	49	15	2.9	6.4

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
APR , 1980									
30...	23	.4	1.8	42	4.4	.9	.1	41	104
JUL									
17...	23	.4	2.3	56	12	.9	.6	41	111
SEP									
16...	21	.4	2.7	68	6.1	1.1	.1	41	81
NOV									
20...	21	.4	2.2	62	.8	1.0	.1	36	107

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, VOLATILE, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	RA-226, DISSOLVED, PLANCHET COUNT (PCI/L)	URANIUM NATURAL DISSOLVED (UG/L AS U)	ARSENIC DISSOLVED (UG/L AS AS)	SELENIUM, DISSOLVED (UG/L AS SE)
APR , 1980									
30...	90	.14	30	.10	5.1	.2	2.0	2	0
JUL									
17...	111	.15	20	.00	3.2	<.1	2.5	3	0
SEP									
16...	117	.11	94	.00	2.3	<.1	2.3	1	0
NOV									
20...	102	.14	102	.11	4.9	<.1	3.6	--	--

STEVENS COUNTY--Continued

12433542 - BLUE CRK ABV MINE DRAINAGE NR WELLPINIT D-4 (Cont).

DATE	TIME	CADMIUM DIS-SOLVED (UG/L AS CD)	COBALT, DIS-SOLVED (UG/L AS CO)	IRON, DIS-SOLVED (UG/L AS FE)	MANGANESE, DIS-SOLVED (UG/L AS MN)	NICKEL, DIS-SOLVED (UG/L AS NI)	STRONTIUM, DIS-SOLVED (UG/L AS SR)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)
SEP , 1980									
16...	1410	<1	<3	220	20	0	120	3.0	2.8
NOV									
20...	0900	<1	<3	170	20	2	100	--	--

12433544 - SPRING ABOVE HAULAGE RD NEAR WELLPINIT, WA

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM
MAY , 1980									
01...	1515	375	8.2	14.0	192	61	9.6	5.5	5

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
MAY , 1980									
01...	.1	1.0	197	8.3	.6	.3	11	255	215

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, VOLA-TILE, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	RA-226, DIS-SOLVED, PLAN-CHET COUNT (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ARSENIC DIS-SOLVED (UG/L AS AS)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
MAY , 1980								
01...	.34	76	.01	5.2	<.1	7.5	4	0

475648118051201 - 28/37E-12B01 D-22

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
SEP , 1980									
18...	1315	630	6.6	11.0	311	147	90	21	9.4
NOV									
19...	1145	757	6.5	10.0	390	262	110	28	11

DATE	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
SEP , 1980									
18...	6	.2	3.6	164	170	1.4	.2	50	--
NOV									
19...	5	.2	3.4	128	300	1.7	.3	52	569

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, VOLA-TILE, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	RA-226, DIS-SOLVED, PLAN-CHET COUNT (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ARSENIC DIS-SOLVED (UG/L AS AS)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
SEP , 1980									
18...	444	.60	414	.19	39	<.1	43	1	0
NOV									
19...	584	.77	504	3.4	17	.1	11	--	--

STEVENS COUNTY--Continued

475648118051201 - 28/37E-12B01 D-22 (Cont).

DATE	TIME	CADMIUM DIS-SOLVED (UG/L AS CD)	COBALT, DIS-SOLVED (UG/L AS CO)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	NICKEL, DIS-SOLVED (UG/L AS NI)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)
SEP , 1980										
10...	1315	<1	<3	120	80	8	230	--	13	12
NOV										
19...	1145	<1	<3	60	20	6	300	<3	--	--

12433546 - BELOW HAUL RD AT MIDNITE MINE NR WELLPINIT GS-2

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
MAY , 1980										
01...	1015	580	7.9	10.5	10.1	256	76	76	16	7.0
JUL										
14...	1700	440	7.8	11.3	9.4	226	13	69	13	6.2

DATE	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
MAY , 1980									
01...	5	.1	2.4	179	100	.9	.3	49	344
JUL									
14...	5	.1	1.9	212	36	.7	.5	52	304

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, VOLA-TILE, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	RA-226, DIS-SOLVED, PLAN-CHET COUNT (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ARSENIC DIS-SOLVED (UG/L AS AS)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
MAY , 1980									
01...	359	.46	30	.08	28	.7	39	4	0
JUL									
14...	304	.41	32	.06	36	1.2	43	5	0

12433548 - EAST DRAINAGE FR MIDNITE MINE NR WELLPINIT D-11

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
APR , 1980										
29...	1315	600	8.6	9.6	10.4	320	113	92	22	10
JUL										
14...	1010	580	8.4	12.4	10.1	292	57	84	20	9.4
SEP										
15...	1535	591	8.1	12.0	9.2	293	58	86	19	11
NOV										
18...	1045	649	7.6	3.0	12.8	309	84	89	21	9.9

STEVENS COUNTY--Continued

12433548 - EAST DRAINAGE FR MIDNITE MINE NR WELLPINIT D-11 (Cont).

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
APR , 1980 29...	6	.2	3.4	207	130	1.3	.3	54	441
JUL 14...	6	.2	3.7	235	84	1.1	.5	55	420
SEP 15...	7	.2	4.0	235	88	1.3	.3	57	409
NOV 18...	6	.2	3.5	224	130	1.6	.2	52	423

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIUS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	ARSENIC DIS- SOLVED (UG/L AS AS)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
APR , 1980 29...	437	.60	43	1.5	43	.4	38	5	0
JUL 14...	399	.57	33	.99	23	.4	38	6	0
SEP 15...	408	.55	401	.42	76	.4	74	6	0
NOV 18...	442	.57	383	.79	57	.4	48	--	--

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)
SEP , 1980 15...	1535	1	<3	30	20	0	210	--	19	18
NOV 18...	1045	<1	<3	<10	20	2	200	<3	--	--

475658118051601 - 28/37E-01Q01 D-27

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	PERCENT SODIUM
SEP , 1980 18...	1130	131	6.6	11.6	43	9.3	4.8	6.8	24
NOV 19...	0930	122	6.6	11.0	43	9.4	4.9	7.4	26

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
SEP , 1980 18...	.4	1.5	50	21	.6	.5	36	94	112
NOV 19...	.5	1.4	45	23	.8	.6	36	102	112

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	ARSENIC DIS- SOLVED (UG/L AS AS)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
SEP , 1980 18...	.12	98	.00	3.5	<.1	7.0	[illegible]	0
NOV 19...	.13	81	.06	2.4	<.1	.8	--	--

STEVENS COUNTY--Continued

475658118051601 - 28/37E-01Q01 D-27 (Cont).

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)
SEP , 1980 18...	1130	<1	<3	1600	210	0	40	--	2.9	2.7
NOV 19...	0930	<1	<3	1600	210	0	40	<3	--	--

475710118053001 - 28/37E-01L01 D-26

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)
NOV , 1980 19...	0850	67	6.2	9.8	21	4.9	2.3	6.0	36	.5	.5	28

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)
NOV , 1980 19...	8.2	.5	.2	36	71	75	.09	55	.23	24	.5	13

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV , 1980 19...	0850	<1	<3	20	10	30	7

12433550 - WASTEPOND AT MIDNITE MINE NR WELLPINIT D-20

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
MAY , 1980 01...	1200	4980	4.0	18.2	8.8	2755	2756	460	390	25
JUL 15...	1220	7000	4.0	20.0	--	3844	3800	550	600	30
SEP 16...	1600	10200	4.3	20.2	--	3515	3500	500	550	33
NOV 19...	1330	8970	4.9	4.0	--	3209	3203	460	500	110

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
MAY , 1980 01...	1	.2	6.1	--	4200	1.4	1.0	12	6180
JUL 15...	1	.2	7.7	--	6300	4.0	.1	24	9770
SEP 16...	1	.2	7.6	--	6700	.2	2.2	9.8	9890
NOV 19...	6	.8	8.6	6	5800	12	2.5	12	7840

12433550 - WASTEPOND AT MIDNITE MINE NR WELLPINIT D-20 (Cont).

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	ARSENIC DIS- SOLVED (UG/L AS AS)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
MAY , 1980									
01...	5095	8.4	854	17	59000	19	67000	1	2
JUL									
15...	7596	13.2	2110	17	72000	47	120000	0	3
SEP									
16...	8020	12.3	5310	1.2	25000	22	24000	0	4
NOV									
19...	7097	10.6	3260	31	25000	19	34000	--	--

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)
SEP , 1980										
16...	1600	200	1500	230	210000	2000	1300	--	7900	7400
NOV										
19...	1330	190	1100	130	180000	1000	1500	3600	--	--

475605118053001 - 28/37E-12P02

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JUL , 1980									
16...	1145	5670	4.7	13.0	3169	3155	560	430	31
NOV									
19...	1330	4870	6.4	12.0	2675	2574	460	370	62

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
JUL , 1980									
16...	2	.2	10	14	4000	.7	2.5	23	6390
NOV									
19...	4	.5	10	101	4200	22	1.7	28	5620

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	ARSENIC DIS- SOLVED (UG/L AS AS)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
JUL , 1980									
16...	5066	8.6	1100	12	59000	56	73000	1	1
NOV									
19...	5352	7.6	5260	26	16000	61	17000	--	--

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV , 1980								
19...	1330	110	790	470	130000	1300	2500	2300

STEVENS COUNTY Continued

475605118053101 - 28/37E-12P03

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
MAY , 1980 14...	1530	4030	5.8	11.2	2906	2834	570	360	28
JUL 15...	1450	6170	4.6	13.7	3466	3452	580	490	32
SEP 17...	1130	7470	5.8	15.2	3186	3113	500	470	35
NOV 19...	1530	6070	6.1	13.2	2848	2741	480	400	59

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
MAY , 1980 14...	2	.2	8.1	72	3100	2.4	4.4	33	4990
JUL 15...	1	.2	12	14	4700	1.8	1.6	21	7290
SEP 17...	2	.2	11	73	5100	2.4	1.2	25	6790
NOV 19...	4	.4	10	107	4400	21	1.6	31	5750

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	ARSENIC DIS- SOLVED (UG/L AS AS)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
MAY , 1980 14...	4149	6.7	279	14	24000	45	35000	1	1
JUL 15...	5847	9.9	1320	14	51000	74	77000	0	2
SEP 17...	6405	9.2	4820	11	18000	78	21000	0	2
NOV 19...	5614	7.8	3650	13	17000	65	21400	--	--

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)
SEP , 1980 17...	1130	160	1300	720	210000	2200	1900	--	5400	5100
NOV 19...	1530	120	760	470	140000	1500	2000	2500	--	--

475605118053201 - 28/37E-12P01

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
MAY , 1980 14...	1355	1800	7.2	11.2	1029	858	300	68	18
JUL 16...	1540	1920	7.0	13.8	1141	976	320	83	18
SEP 17...	1230	2590	6.7	--	1627	1440	420	140	21

475605118053201 - 28/37E-12P01 (Cont).

DATE	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 130 DEG. C DIS-SOLVED (MG/L)
MAY , 1980									
14...	3	.2	3.5	171	800	1.0	.3	32	1500
JUL 16...	3	.2	2.8	165	940	.9	.9	33	1710
SEP 17...	2	.2	3.8	187	1400	1.3	.6	34	2410

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, VOLA-TILE, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	RA-226, DIS-SOLVED, PLAN-CHET COUNT (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ARSENIC DIS-SOLVED (UG/L AS AS)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
MAY , 1980									
14...	1325	2.0	63	8.5	2500	1.7	1200	2	1
JUL 16...	1498	2.3	159	9.0	1600	.5	1200	0	1
SEP 17...	2148	3.2	2170	9.3	7100	1.0	8200	0	1

DATE	TIME	CADMIUM DIS-SOLVED (UG/L AS CD)	COBALT, DIS-SOLVED (UG/L AS CO)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	NICKEL, DIS-SOLVED (UG/L AS NI)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)
SEP , 1980									
17...	1230	10	9	760	13000	200	1600	1800	1700

475550118053101 - 28/37E-13C01

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
JUL , 1980									
16...	1300	5170	6.4	13.0	3310	3117	600	440	37
SEP 17...	1330	6170	6.4	14.8	3474	3267	500	540	39
NOV 19...	1430	6320	6.4	12.8	3485	3322	520	530	56

DATE	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
JUL , 1980									
16...	2	.2	16	193	3600	.3	5.6	24	5790
SEP 17...	2	.2	15	207	4300	2.6	3.0	33	6470
NOV 19...	3	.4	21	163	4100	21	8.5	33	6310

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, VOLA-TILE, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	RA-226, DIS-SOLVED, PLAN-CHET COUNT (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ARSENIC DIS-SOLVED (UG/L AS AS)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
JUL , 1980									
16...	4839	7.8	725	26	40000	72	58000	1	2
SEP 17...	5705	8.7	5510	40	39000	120	40000	1	1
NOV 19...	5647	8.5	4730	99	33000	85	40000	--	--

475558117053101 - 28/37E-13C01 (Cont)

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)
SEP , 1980 17...	1330	120	1800	600	140000	3600	1900	--	11000	11000
NOV 19...	1430	120	960	250	250000	1900	3800	2700	--	--

12433552 - BELOW DAM AT MIDNITE MINE NR WELLPINIT D-15

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
MAY , 1980 01...	1330	4500	6.8	13.6	4.4	2731	2572	500	360	33
JUL 15...	1540	4870	6.5	11.6	3.8	3160	2956	540	440	36
SEP 16...	1510	6470	6.4	12.6	3.0	3243	3050	490	490	34
NOV 19...	1515	5570	6.5	12.0	4.4	2963	2796	460	440	56

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
MAY , 1980 01...	2	.2	9.1	159	3000	1.4	2.2	32	4660
JUL 15...	2	.2	15	204	3500	.4	2.4	25	5460
SEP 16...	2	.2	13	193	3900	1.2	2.4	33	6100
NOV 19...	3	.4	14	167	4000	46	2.3	32	6810

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	ARSENIC DIS- SOLVED (UG/L AS AS)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
MAY , 1980 01...	4033	6.3	466	23	19000	69	31000	2	1
JUL 15...	4681	7.4	609	10	30000	110	40000	1	1
SEP 16...	5276	8.2	4950	21	27000	130	33000	1	1
NOV 19...	5378	8.1	4730	49	26000	88	29000	--	--

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)
SEP , 1980 16...	1510	120	1400	60	190000	3000	1700	--	9300	8500
NOV 19...	1515	120	890	60	220000	1700	2100	2600	--	--

STEVENS COUNTY Continued

475547118053001 - WELL # 28N/37E-13G01

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
NOV , 1980												
18...	1530	945	7.8	10.4	524	380	160	30	16	6	.3	4.5

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)
NOV , 1980												
18...	430	1.4	.3	32	777	763	1.0	743	.82	63	.4	61

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV , 1980								
18...	1530	2	4	20	470	3	840	<3

475550118053001 - WELL # 28N/37E-13F01

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
MAY , 1980									
15...	1120	2380	6.6	8.6	1618	1511	450	120	21
JUL 19...	1400	2900	6.1	11.8	1956	1902	470	190	28
SEP 17...	1415	3720	5.6	13.0	2545	2517	590	260	33
NOV 18...	1500	3330	5.8	10.2	2256	2217	540	220	29

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
MAY , 1980									
15...	2	.2	5.6	107	1400	17	.1	49	2390
JUL 19...	3	.2	1.0	54	2000	1.4	1.2	54	3210
SEP 17...	2	.2	11	28	3600	2.0	.7	9.3	3940
NOV 18...	2	.2	9.7	39	2400	2.1	.7	71	3530

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	ARSENIC DIS- SOLVED (UG/L AS AS)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
MAY , 1980									
15...	2127	3.2	210	7.5	37	.5	54	1	1
JUL 19...	2778	4.3	304	17	510	.6	476	1	0
SEP 17...	4594	5.3	3620	21	390	1.0	497	0	1
NOV 18...	3352	4.8	4160	29	330	.6	279	--	--

475550117053001 - WELL # 28N/37E-13F01 (Cont)

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)
SEP , 1980 17...	1415	50	27	80	68000	1900	820	--	120	110
NOV 18...	1500	50	18	230	52000	990	1700	1100	--	--

475549117053501 - 28/37E-13C02

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
NOV , 1980 18...	1300	1220	7.6	9.4	703	600	230	31

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
NOV , 1980 18...	20	5	.3	4.3	100	600	2.2	.2	24

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)
NOV , 1980 18...	1050	973	1.4	972	5.3	770	.4	620

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV , 1980 18...	1300	<1	<3	<10	10	0	1000	<3

12433554 - WEST DRAINAGE FR MIDNITE MINE NR WELLPINIT D-10

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
APR , 1980 29...	1115	1940	7.9	10.4	10.2	1115	1026	290	95	23
JUL 14...	1510	1800	8.0	9.2	11.4	999	871	260	85	23
SEP 15...	1420	2100	7.7	9.4	10.7	1134	983	310	87	30
NOV 18...	1330	1565	7.4	6.8	11.2	1034	874	280	81	25

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
APR , 1980 29...	4	.3	7.8	89	1000	.3	.3	31	1750
JUL 14...	4	.3	7.0	128	870	3.0	.5	32	1610
SEP 15...	5	.4	7.4	151	930	2.5	.3	38	1560
NOV 18...	4	.3	7.5	160	850	2.9	.3	34	1550

STEVENS COUNTY Continued

12433554 - WEST DRAINAGE FR MIDNITE MINE NR WELLPINIT D-10 (Cont)

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	ARSENIC DIS- SOLVED (UG/L AS AS)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
APR , 1980 29...	1501	2.3	192	15	1500	5.4	1300	2	2
JUL 14...	1357	2.1	171	15	2200	7.6	2400	1	1
SEP 15...	1509	2.1	1470	19	2700	2.9	3900	1	2
NOV 18...	1390	2.1	1460	12	2400	3.4	3200	--	--

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)
SEP , 1980 15...	1420	2	26	<10	12000	75	1400	460	440
NOV 18...	1330	<1	23	<10	12000	64	1200	--	--

475530118052301 - 28/37E-13L01

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
NOV , 1980 18...	1130	1570	6.4	10.0	1063	940	280	88

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
NOV , 1980 18...	22	4	.3	5.5	120	890	1.9	.2	49

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)
NOV , 1980 18...	1510	1413	2.0	1410	.97	45	1.3	49

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV , 1980 18...	1130	2	<3	1400	2300	3	920	20

STEVENS COUNTY Continued

475529118052301 - WELL # 28N/37E-13L03

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
NOV , 1980 18...	0930	1250	6.4	9.6	620	510	200	29

DATE	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV , 1980 18...	16	5	.2	4.0	110	580	1.7	.3	35

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, VOLATILE, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	RA-226, DISSOLVED, PLANCHET COUNT (PCI/L)	URANIUM NATURAL DISSOLVED (UG/L AS U)
NOV , 1980 18...	944	939	1.2	94	.88	53	.6	40

DATE	TIME	CADMIUM DISSOLVED (UG/L AS CD)	COBALT, DISSOLVED (UG/L AS CO)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)	NICKEL, DISSOLVED (UG/L AS NI)	STRONTIUM, DISSOLVED (UG/L AS SR)	ZINC, DISSOLVED (UG/L AS ZN)
NOV , 1980 18...	0930	5	4	60	1500	6	930	10

12433556 - MINE DRAINAGE NR BLUE CRK NR WELLPINIT D-6

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
APR , 1980 29...	1515	1420	8.2	9.4	10.0	817	700	210	71	19
JUL 14...	1915	1780	8.0	12.4	10.4	978	845	240	92	21
SEP 15...	1630	3000	7.7	12.8	9.6	1179	1040	290	110	26
NOV 18...	0945	1780	7.6	4.0	12.6	1013	863	250	94	22

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
APR , 1980 29...	4	.2	5.5	117	710	2.0	.5	50	1210
JUL 14...	4	.3	6.7	133	840	4.0	.7	54	1560
SEP 15...	4	.3	7.4	139	1100	2.0	.4	58	1830
NOV 18...	4	.3	7.4	150	1000	2.1	.4	53	1600

12433556 - MINE DRAINAGE NR BLUE CRK NR WELLPINIT D-6 (Cont)

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, VOLA-TILE, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	RA-226, DIS-SOLVED, PLAN-CHET COUNT (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ARSENIC DIS-SOLVED (UG/L AS AS)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
APR , 1980 29...	1130	1.6	117	7.4	400	1.7	420	2	1
JUL 14...	1338	2.1	161	9.9	700	1.4	882	2	1
SEP 15...	1700	2.4	1680	11	970	.4	830	2	0
NOV 18...	1540	2.1	1460	10	430	.5	425	--	--

DATE	TIME	CADMIUM DIS-SOLVED (UG/L AS CD)	COBALT, DIS-SOLVED (UG/L AS CO)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	NICKEL, DIS-SOLVED (UG/L AS NI)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)
SEP , 1980 15...	1630	13	12	<10	21000	270	1200	210	210
NOV 18...	0945	10	10	<10	19000	340	1000	--	--

475620118055701 - 28/37E-12M01

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM
MAY , 1980 13...	1530	150	7.2	12.6	52	12	5.4	12	32
JUL 16...	1700	170	6.8	14.4	52	12	5.4	12	32

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
MAY , 1980 13...	.7	1.0	69	21	.9	.3	35	117	129
JUL 16...	.7	1.0	68	15	.8	.7	36	130	124

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, VOLA-TILE, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	RA-226, DIS-SOLVED, PLAN-CHET COUNT (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ARSENIC DIS-SOLVED (UG/L AS AS)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
MAY , 1980 13...	.15	35	.28	18	1.8	8.9	2	0
JUL 16...	.17	20	.11	13	1.3	10	1	0

12433558 - BLUE CRK BLW MINE DRAINAGE NR WELLPINIT D-5

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
APR , 1980 30...	1330	245	8.1	12.2	9.6	102	52	27	8.3	6.3
JUL 17...	1250	620	7.8	14.8	8.9	271	192	69	24	9.6
SEP 16...	1310	1180	7.2	12.6	8.8	652	559	160	61	50
NOV 20...	0930	997	7.1	3.6	12.3	473	373	120	42	12

12433558 - BLUE CRK BLW MINE DRAINAGE NR WELLPINIT D-5 (Cont)

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
APR , 1980									
30...	11	.2	2.2	49	67	.9	.2	42	177
JUL 17...	7	.2	3.5	79	210	.9	.5	44	456
SEP 16...	14	.8	5.2	93	610	1.5	.3	16	862
NOV 20...	5	.2	4.3	100	450	1.5	.3	42	753

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, VOLA- TILE, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	RA-226, DIS- SOLVED, PLAN- CHET COUNT (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	ARSENIC DIS- SOLVED (UG/L AS AS)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
APR , 1980									
30...	183	.24	21	.56	61	.1	51	2	0
JUL 17...	409	.62	44	2.3	180	.3	221	3	0
SEP 16...	973	1.1	912	6.3	550	.4	511	1	0
NOV 20...	741	1.0	700	4.4	230	.2	235	--	--

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)
SEP , 1980									
16...	1310	6	7	50	12000	190	700	77	72
NOV 20...	0930	4	4	50	7900	--	490	--	--

12433560 - BLUE CRK ABV OYACHEN CRK NR WELLPINIT D-7

WATER QUALITY DATA

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
APR , 1980									
30...	1130	255	8.0	10.6	10.4	103	28	8.1	6.7
JUL 17...	1145	595	7.8	14.2	9.7	272	71	23	10
SEP 16...	1000	896	7.0	11.0	9.8	461	120	39	15
NOV 20...	0815	907	6.7	3.6	12.4	428	110	37	12

DATE	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
APR , 1980									
30...	12	.2	2.1	53	63	1.0	.2	41	200
JUL 17...	7	.2	3.4	74	220	1.7	.5	43	445
SEP 16...	6	.3	4.3	89	400	1.7	.3	45	697
NOV 20...	5	.2	4.1	98	390	2.2	.3	41	685

STEVENS COUNTY Continued

12433560 - BLUE CRK ABV OYACHEN CRK NR WELLPINIT D-7 (Cont)

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, VOLA-TILE, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	RA-226, DIS-SOLVED, PLAN-CHET COUNT (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ARSENIC DIS-SOLVED (UG/L AS AS)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
APR , 1980									
30...	182	.27	31	.48	53	.3	54	2	0
JUL									
17...	417	.60	42	1.7	160	.1	184	2	0
SEP									
16...	680	.94	656	3.3	320	.2	342	1	0
NOV									
20...	653	.93	644	3.5	310	.2	265	--	--

DATE	TIME	CADMIUM DIS-SOLVED (UG/L AS CD)	COBALT, DIS-SOLVED (UG/L AS CO)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	NICKEL, DIS-SOLVED (UG/L AS NI)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)
SEP , 1980									
16...	1000	2	<3	20	1000	24	540	77	73
NOV									
20...	0815	<1	<3	20	2300	55	480	--	--

12433562 - BLUE CRK ABV LK ROOSEVELT NR WELLPINIT D-8

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
APR , 1980										
30...	0945	205	8.1	10.6	10.6	87	27	24	6.8	6.7
JUL										
17...	1030	480	7.7	16.4	9.2	224	139	60	18	9.6
SEP										
16...	0900	796	7.3	11.4	9.7	415	320	110	34	16
NOV										
17...	1540	793	6.8	2.8	12.4	352	260	93	29	11

DATE	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
APR , 1980									
30...	13	.3	1.9	60	46	.9	.2	41	182
JUL									
17...	8	.2	3.2	85	150	10	.5	42	359
SEP									
16...	7	.3	3.8	95	340	1.3	.3	44	609
NOV									
17...	6	.2	3.7	92	320	1.5	.3	36	562

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, VOLA-TILE, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	RA-226, DIS-SOLVED, PLAN-CHET COUNT (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ARSENIC DIS-SOLVED (UG/L AS AS)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
APR , 1980									
30...	163	.24	21	.29	31	<.1	44	2	0
JUL									
17...	344	.48	31	.56	120	<.1	146	2	0
SEP									
16...	607	.82	579	1.3	330	.2	214	1	0
NOV									
17...	551	.76	552	2.3	300	<.1	244	--	--

STEVENS COUNTY Continued

12433562 - BLUE CRK ABV LK ROOSEVELT NR WELLPINIT D-8 (Cont)

WATER QUALITY DATA

DATE	TIME	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	NICKEL, DIS- SOLVED (UG/L AS NI)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)
SEP , 1980								
16...	0900	1	<3	<10	30	3	550	--
NOV								
17...	1540	<1	<3	<10	650	16	420	7

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October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	$2.54\text{x}10^{1}$	millimeters (mm)
	$2.54\text{x}10^{-2}$	meters (m)
feet (ft)	$3.048\text{x}10^{-1}$	meters (m)
miles (mi)	$1.609\text{x}10^{0}$	kilometers (km)
	Area	
acres	$4.047\text{x}10^{3}$	square meters (m^2)
	$4.047\text{x}10^{-1}$	square hectometers (hm^2)
	$4.047\text{x}10^{-3}$	square kilometers (km^2)
square miles (mi^2)	$2.590\text{x}10^{0}$	square kilometers (km^2)
	Volume	
gallons (gal)	$3.785\text{x}10^{0}$	liters (L)
	$3.785\text{x}10^{0}$	cubic decimeters (dm^3)
	$3.785\text{x}10^{-3}$	cubic meters (m^3)
million gallons	$3.785\text{x}10^{3}$	cubic meters (m^3)
	$3.785\text{x}10^{-3}$	cubic hectometers (hm^3)
cubic feet (ft^3)	$2.832\text{x}10^{1}$	cubic decimeters (dm^3)
	$2.832\text{x}10^{-2}$	cubic meters (m^3)
cfs-days	$2.447\text{x}10^{3}$	cubic meters (m^3)
	$2.447\text{x}10^{-3}$	cubic hectometers (hm^3)
acre-feet (acre-ft)	$1.233\text{x}10^{3}$	cubic meters (m^3)
	$1.233\text{x}10^{-3}$	cubic hectometers (hm^3)
	$1.233\text{x}10^{-6}$	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	$2.832\text{x}10^{1}$	liters per second (L/s)
	$2.832\text{x}10^{1}$	cubic decimeters per second (dm^3/s)
	$2.832\text{x}10^{-2}$	cubic meters per second (m^3/s)
gallons per minute (gal/min)	$6.309\text{x}10^{-2}$	liters per second (L/s)
	$6.309\text{x}10^{-2}$	cubic decimeters per second (dm^3/s)
	$6.309\text{x}10^{-5}$	cubic meters per second (m^3/s)
million gallons per day	$4.381\text{x}10^{1}$	cubic decimeters per second (dm^3/s)
	$4.381\text{x}10^{-2}$	cubic meters per second (m^3/s)
	Mass	
tons (short)	$9.072\text{x}10^{-1}$	megagrams (Mg) or metric tons